NOUVELLES TABLES

D'INTÉGRALES DÉFINIES.

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PAR

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1867.

IMPRIMERIE DE J. C. DRABBE.

A

SA MAJESTÉ,

LE ROI DES PAYS-BAS, GRAND-DUC DE LUXEMBOURG, ETC., ETC., ETC.,

GUILLAUME III,

PROTECTEUR

DE L'ACADÉMIE ROYALE DES SCIENCES D'AMSTERDAM.

Les Tables d'Intégrales Définies, — formant le Volume IV des Mémoires de l'Académie Royale des Sciences d'Amsterdam, qui a paru en 1858 — ont été épuisées en peu de temps. C'est avec reconnaissance et quelque peu de fierté, que j'attribue ce succès inespéré à l'accueil tout favorable fait à une entreprise scientifique, première en son genre, tant par divers corps savants que par les journaux scientifiques de l'étranger.

Mais dès-lors je dus songer à une nouvelle édition. Or, pour celle-ci je pouvais profiter de l'expérience acquise par la première, ainsi que des remarques faites par quelques savants bienveillants. En outre, j'avais publié dans l'intervalle quelques mémoires contenant des systèmes nouveaux de ces formules. Et surtout, notre Académie avait fait imprimer en 1862 le Volume VIII de ses Mémoires, renfermant mon „Exposé de la théorie, des propriétés, des formules de transformation et des méthodes d'évaluation des intégrales définies."

Il était indispensable, vu l'accumulation des matériaux, de simplifier autant que possible le but qu'on se proposait, et le chemin qui devait y conduire. Il fallait, en général, supprimer les intégrales superflues; en outre il semblait nécessaire d'omettre les notices littéraires.

Comme intégrales superflues, j'ai omis en premier lieu les intégrales déjà connues comme indéfinies, et qui ne tombent dans aucun cas de discontinuité. Ensuite, on pouvait négliger celles qui, par des considérations particulières, pouvaient se réduire aisément à d'autres intégrales. Ainsi, celles où la fonction à intégrer est paire ou impaire, sont données seulement pour les limites 0 et 1, 0 et ∞, ou 0 et $\frac{1}{2}\pi$, 0 et π, non pour celles -1 et $+1$, $-\infty$ et $+\infty$, ou $-\frac{1}{2}\pi$ et $+\frac{1}{2}\pi$, $-\pi$ et $+\pi$. Celles où la fonction ne change pas par une substitution de la

valeur inverse de la variable, ne sont données que pour les limites 0 et 1, les intégrales entre les limites 1 et ∞, 0 et ∞, pouvant aisément se déduire de celles-ci. De même dans les intégrales où il faut intégrer une fonction de $Sin\, x$ seulement, le *sinus* est changé en *cosinus* par la substitution $x = \frac{\pi}{2} - y$; ces dernières intégrales sont omises en général.

De cette manière on obtenait déjà une véritable simplification; restait encore à supprimer les notices littéraires. Or, celles-ci avaient un double but: celui de donner un coup d'œil sur l'état actuel et sur l'histoire de la science; en second lieu, celui de tenir lieu de démonstration, puisqu'on y renvoyait aux sources elles-mêmes. Donc, en renonçant à ces notices, il fallait absolument y suppléer d'une autre manière, puisqu'il est nécessaire avant tout que chacun, s'il le désire, puisse s'assurer lui-même de la validité du résultat donné.

J'ai cru pouvoir satisfaire à ces diverses conditions par les considérations suivantes.

Le Volume VIII des Mémoires de l'Académie, mentionné ci-dessus, contenait, conformément à son but, la déduction d'une partie des intégrales du Volume IV; et, de plus, un certain nombre de formules nouvelles. Pour l'évaluation de ces intégrales on pouvait se contenter de citer le passage correspondant du Volume VIII; en outre, soit dans cette discussion, soit dans le renvoi vers le Volume IV, on trouvait tout ce qui était légitimement à désirer sur les sources, où chaque intégrale était traitée. J'ai donc commencé par admettre toutes les formules trouvées dans le Volume VIII; elles sont notées ainsi (VIII, ...), le second nombre indiquant le numéro de la page à consulter.

Autour de ce noyau pouvaient se grouper les divers systèmes de formules mentionnés ci-dessus, et qui se trouvent soit dans les Mémoires ou les Comptes-Rendus de notre Académie, soit dans ceux de la Société des Sciences à Harlem, soit dans les Archives publiées par une Société mathématique à Amsterdam, sous la devise: „Een onvermoeide Arbeid, etc." Ces mémoires sont cités (voir les Abréviations etc. page 22 et 23), avec addition de la page quelquefois, dans le cas où le mémoire en question a un trop grand volume, pour que la recherche de l'intégrale y soit aisée. Quant au mémoire noté (H)., il est nécessaire, pour une juste appréciation de l'histoire de la science, d'observer ici que quelques-unes des formules qu'on y rencontre, avaient déjà été déduites auparavant par l'illustre C. J. Malmsten, dans les Nouveaux Actes d'Upsala, T. XII. p. 171.

Ensuite de ce corps de formules il était permis de déduire par des méthodes simples d'autres intégrales définies, méthodes, soit d'addition et de soustraction, soit de substitution d'une nouvelle variable, soit de l'application d'une intégration partielle, dont j'ai traité dans le Volume II des Mémoires de l'Académie. Je les ai employées principalement là, où cette extension me semblait

désirable pour compléter le cadre. Tout comme dans le Volume IV, ces résultats sont indiqués ainsi (V. T...., N...), sans qu'on ait jugé nécessaire de signaler la méthode de déduction; vu que, d'un côté, cette indication aurait pu prendre beaucoup de place, ce qui était contraire au but; et que, d'autre part, on peut toujours aisément y suppléer soi-même par l'inspection et la comparaison du résultat obtenu et de la formule citée.

Mais il ne m'a pas été possible de comprendre dans ce système, déjà suffisamment développé, toutes les formules qui étaient à transcrire des tables originelles du Volume IV, ni toutes celles que je rencontrais encore par-ci et par-là. A l'égard de ces dernières intégrales il était donc nécessaire de procéder de la même manière que dans le Volume IV; c'est-à-dire d'ajouter pour chacune d'elles une notice, contenant le nom de celui qui l'a déduite, et l'ouvrage, où l'on en peut trouver l'évaluation. Quant aux premières, il suffisait de renvoyer vers le Volume IV, avec la page à consulter, ainsi (IV,...).

C'est ainsi que le but s'est trouvé restreint à ne donner, en général, que la valeur des intégrales définies. Quant à ceux qui veulent étudier les sources, ils devront, lorsqu'elles ne sont pas mentionnées, passer par le Volume VIII au Volume IV, ou directement à ce dernier, où ils pourront trouver ce qu'ils désirent.

Le mode de rédaction maintenant employé, c'est-à-dire sans ajouter, en général, des notices littéraires aux intégrales admises, fournissait encore un autre moyen de rendre le coup d'œil plus commode, en resserrant les Tables. Ce moyen consistait à imprimer deux formules sur une même ligne, lorsqu'il y avait assez de place. En économisant ainsi l'espace d'une page, on a diminué en même temps quelque peu l'étendue de l'ouvrage, sans que pourtant l'examen facile des formules ait eu à en souffrir.

Nous allons voir que cette simplification était bien nécessaire pour ne pas grossir le volume outre mesure, et en rendre par-là-même l'usage difficile et incommode.

Les anciennes Tables (Volume IV des Mémoires etc.) contenaient environ 7300 formules, dont environ 4200 ont été admises dans ces Nouvelles Tables. Ce nombre s'est accru jusqu' à 8339, dont 2620 se trouvent évaluées dans l'Exposé (Volume VIII) et 1272 autres dans l'une ou l'autre de mes notes, dont il a été fait mention plus haut. J'en ai rencontré encore 366 soit dans des ouvrages qui ont paru plus tard que 1859, soit dans d'autres que je n'avais pu consulter auparavant. Pour 1015 autres j'ai dû me contenter de renvoyer au Volume IV, les anciennes Tables elles-mêmes. Enfin il s'en trouve encore un nombre de 3086, qui ont été déduites de ces premières formules, par quelqu'une des méthodes mentionnées précédemment. On en pourra le mieux juger par l'inspection des données suivantes.

Section.	Tables.	Renvois au		Formules trouvées dans des mémoires		Formules déduites.	Total des formules.
		Vol. VIII.	Vol. IV.	de moi.	d'autres auteurs.		
1	1-25	232	82	—	13	103	430
2	26-29	20	15	—	6	25	66
3	30-33	13	3	—	1	33	50
4	34-75	298	119	134	66	254	871
5	76-78	14	4	—	—	11	29
6	78	—	4	—	—	1	5
Partie I.		577	227	134	86	427	1451
en raison de		40	16	9	6	29	pour 100
7	80-105	106	126	—	17	219	468
8	106-148	214	122	—	104	362	802
9	149-228	571	191	648	41	224	1675
10	229-254	97	3	—	3	334	437
11	255	8	—	—	2	1	11
Partie II.		996	442	648	167	1140	3393
en raison de		29	13	19	5	34	pour 100
12	256-260	14	11	—	1	50	76
13	261-281	105	84	—	33	105	327
14	282	3	—	—	1	6	10
15	283	5	—	—	—	1	6
16	284-338	154	62	31	6	721	974
17	339	2	—	—	—	8	10
18	340	6	1	—	—	2	9
19	341-349	41	4	—	3	74	122
20	350, 351	16	5	—	3	1	25
Partie III.		346	167	31	47	968	1559
en raison de		22	11	2	3	62	pour 100
21	352-360	21	26	—	9	55	111
22	361-398	120	76	292	24	82	594
23	399	7	10	—	—	6	23
24	400	5	—	—	1	—	6
25	401-434	181	35	128	18	170	532
26	435-443	3	2	5	—	111	121
27	444	1	—	—	—	4	5
28	455-459	164	6	27	6	29	232
29	460-465	93	—	—	—	—	93
30	466	12	—	—	—	—	12
31	467-471	—	8	—	3	45	56
32	472	2	—	—	3	6	11
33	473	4	—	—	—	5	9
34	474	5	—	—	—	2	7
35	475	4	2	—	—	6	12
36	476	4	—	—	—	—	4
Partie IV.		626	165	452	64	521	1828
en raison de		34	9	25	4	28	pour 100
37	477-486	75	14	7	2	30	128
Partie V.		75	14	7	2	30	128
en raison de		58	11	5	2	24	pour 100

Récapitulation. Parties.	Renvois au		Formules trouvées dans des mémoires		Formules déduites.	Total des formules.
	Vol. VIII.	Vol. IV.	de moi.	d'autres auteurs.		
I.	577	227	134	86	427	1451
II.	996	442	648	167	1140	3393
III.	346	167	31	47	968	1559
IV.	626	165	452	64	521	1828
V.	75	14	7	2	30	128
Partie I—V.	2620	1015	1272	366	3086	8359
en raison de	31	12	15	5	37	pour 100

Les divers changements qui viennent d'être exposés, réduction du volume des anciennes Tables, accroissement de 99 pour cent environ par de nouvelles formules, omission des notices littéraires, suffiront sans doute à justifier le nouveau titre de ces Nouvelles Tables.

Dans la préface du Tome IV, j'ai dû traiter de la classification des Tables. Je crois que l'usage a justifié les principes de cette classification, et par suite je les ai pris de nouveau pour base. De même dans le cadre des Tables il n'est survenu aucun changement d'importance, si ce n'est quelquefois une subdivision d'une table, que nécessitait une trop grande affluence de formules. Seulement, dans chaque Section j'ai voué une Table spéciale à ces „Intégrales Limites", dans lesquelles une constante converge vers zéro, ou diverge vers l'infini.

Quelques mots suffiront pour faire comprendre la construction des Tables elles-mêmes, qui n'a pas changé non plus. En tête de chaque Table on trouve au milieu, son numéro; à gauche, la description des fonctions intégrées; à droite, les limites de l'intégration. Ce sont les mêmes trois arguments principaux qui figurent dans le Sommaire des Tables.

Le manuscrit achevé, Sa Majesté notre Roi a daigné accorder une indemnité à l'éditeur, pour l'aider à supporter les frais considérables de l'impression d'un tel ouvrage. C'est grâce à cette haute et bienveillante intervention que l'impression à pu être commencée.

Toute personne, qui a quelque expérience d'une pareille entreprise, sait combien il est difficile d'éliminer toutes sortes de fautes, provenant des sources les plus diverses. Quoique je me fusse appliqué de toutes mes forces à obtenir une grande exactitude à cet égard, l'expérience m'avait montré combien il faut se méfier de soi-même, là où il n'y a aucun contrôle à imaginer. J'ai pris le parti de vérifier, après l'impression, chaque formule auprès de la source même. C'était un

travail laborieux, et il m'a fait trouver quelques intégrales oubliées dans la rédaction. En outre, depuis que le manuscrit avait été rédigé, j'avais encore rencontré quelques formules. Par suite j'ai cru devoir donner les unes et les autres dans une Addition, afin de mettre cet ouvrage, autant que possible, à la hauteur de l'époque actuelle. Pour que ces intégrales puissent entrer dans le corps de l'ouvrage, elles sont imprimées de manière à pouvoir être découpées et attachées auprès de la Table à laquelle elles appartiennent; par la même raison, le numéro d'ordre de la Table est continué pour ces formules supplémentaires.

Mais quant au but propre de cette révision, la recherche des fautes qui pouvaient s'être introduites dans cet ouvrage, elle ne m'a donné que trop de sujet de me féliciter de l'avoir entreprise. La liste des corrections peut en témoigner; j'y ai aussi noté les renvois fautifs. Oserais-je invoquer l'indulgence des savants en citant ici l'opinion bienveillante d'un éminent mathématicien anglais (A. d. M) [à l'occasion de mes Tables d'Intégrales Définies, dans The Athenaeum, N. 1607, Aug. 14, 1858]. „We must tell our general reader, that among other things which he does not know, all books of algebra will have misprints: the absence of a table of errata does not show that they are not there, but only that they have not been found out."

Quant à l'éditeur, il s'est donné toute peine possible pour faire réussir ces Tables. Muni d'un tout nouveau système de types, l'atelier typographique de M. Drabbe s'est fait un point d'honneur de satisfaire aux soins qu'exige un tel ouvrage, où la rigueur est de première nécessité, sans toutefois que l'élégance doive en être exclue.

Je viens de donner une esquisse biographique des Nouvelles Tables. Puissent-elles trouver un accueil aussi bienveillant que leur soeur aînée.

D. B. D. H.

NOUVELLES TABLES

D'INTÉGRALES DÉFINIES,

PAR

D. BIERENS DE HAAN.

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PARTIE CINQUIÈME.

ABRÉVIATIONS DANS LES TITRES DES TABLES.

F.	Fonction.	ent.	entier.	dén.	dénominateur.
Alg.	Algébrique.	fract.	fractionnaire.	fact.	facteur.
Log.	Logarithmique.	mon.	monôme.	prod.	produit.
Circ. Dir.	Circulaire Directe.	bin.	binôme.	puiss.	puissance.
Circ. Inv.	Circulaire Inverse.	trin.	trinôme.	comp.	composé.
rat.	rationnel.	polyn.	polynôme.	arg.	argument.
irrat.	irrationnel.	num.	numérateur.	exp.	exposant.

ABRÉVIATIONS ET NOTATIONS.

IV, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel IV, 1858. Tables d' intégrales définies, par D. Bierens de Haan.

V, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel V, 1857, contient: D. Bierens de Haan, Réduction des intégrales définies générales $\int_0^\infty F(x)\frac{Cos\,p\,x\,d\,x}{q^2+x^2}$, $\int_0^\infty F(x)\frac{Sin\,p\,x\,d\,x}{q^2+x^2}$, et application de ces formules au cas, que $F(x)$ a un facteur de la forme $Sin^a\,x$ ou $Cos^a\,x$.

VIII, . . . Verhandelingen der Koninklijke Akademie van Wetenschappen, Deel VIII, 1862. Exposé de la théorie, des propriétés, des formules de transformation et des méthodes d'évaluation des intégrales définies, par D. Bierens de Haan.

M. Verslagen en Mededeelingen der Koninklijke Akademie van Wetenschappen, Deel XVI, 1864, contient p. 28—159: D. Bierens de Haan, Bijdragen tot de theorie der bepaalde integralen, N°. IV—VII.

H, . . . Natuurkundige Verhandelingen van de Hollandsche Maatschappij der Wetenschappen te Haarlem, 2e verzameling, Deel XVII, 1862. D. Bierens de Haan, Mémoire sur une méthode pour déduire quelques intégrales définies, en partie très-générales, prises entre les limites 0 et ∞, et contenant des fonctions circulaires directes.

ABRÉVIATIONS ET NOTATIONS.

E. O. A.	Archief uitgegeven door het Wiskundig Genootschap onder de zinspreuk: Een onvermoeide arbeid komt alles te boven, Deel I, 1856—1859, contient p. 177—200, 288—315: D. Bierens de Haan, Over eenige bepaalde integralen van den vorm $\int_0^\infty \frac{e^{-px} Sin\,qx \,.\, Sin\,rx \ldots}{x^a} dx$ (ook voor het geval, dat de factor e^{-px} ontbreekt), en enkele andere, die daarmede zamenhangen.
*	dénote que la formule est quelque peu variée.

N. V. Amst.	Nieuwe Verhandelingen der Eerste Klasse van het Koninklijk Nederlandsche Instituut.
C. R.	Comptes Rendus des Séances hebdomadaires de l'Académie des Sciences. Paris.
Phil. Trans.	Philosophical Transactions. London.
Sitz. Ber. Wien.	Sitzungsberichte der Kaiserlichen Akademie der Wissenschaften (Math.-Naturwissensch. Classe). Wien.
Dsch. Zür.	Neue Denkschriften der allgemeinen Schweizerischen Gesellschaft für die gesammten Naturwissenschaften. Zürich.
Mem. Nap.	Memorie della Reale Academia delle Scienze. Napoli.
N. Act. Ups.	Nova Acta Regiae Societatis Scientiarum Upsaliensis. Series 3a. Upsal.
Handl. Stockh.	Kongl. Vetenskaps Academiens Handlingar. Stockholm.

Ann. Math.	Gergonne, Annales de Mathématiques pures et appliquées. Nismes.
L.	Liouville, Journal de Mathématiques pures et appliquées. Paris.
P.	Journal de l'École Polytechnique. Paris.
Math.	The Mathematician.
L. & E. Phil. Mag.	The London and Edinburgh Philosophical Magazine. 3d Series.
L. E. & D. Phil. Mag.	The London, Edinburgh and Dublin Philosophical Magazine. 4th Series.
C. M. J.	The Cambridge Mathematical Journal.
C. & D. M. J.	The Cambridge and Dublin Mathematical Journal.
Q. J.	The Quarterly Journal of pure and applied Mathematics.
Cr.	L. Crelle, Journal für reine und angewandte Mathematik. Berlin.
Gr.	J. A. Grunert, Archiv der Mathematik und Physik. Greifswald.
Schl. Z.	O. Schlömilch, Zeitschrift für Mathematik und Physik. Leipzig.
Int. Calc.	A. De Morgan, Integral Calculus. London. 8°.
Probab.	Laplace, Théorie analytique des Probabilités. Paris, 1812. Courcier. 4°.

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$A = 0,\ 577215\ldots.$

$e = 2,\ 718281\ldots.$

$\pi = 3,\ 141592\ldots.$

$i = \sqrt{-1}$

$Sinph\ q = \dfrac{e^q - e^{-q}}{2}$, Sinus hyperbolique

$Cosph\ q = \dfrac{e^q + e^{-q}}{2}$, Cosinus "

$Tghp\ q = \dfrac{e^q - e^{-q}}{e^q + e^{-q}}$, Tangente "

$Cothp\ q = \dfrac{e^q + e^{-q}}{e^q - e^{-q}}$, Cotangente "

Notations, non admises comme arguments dans les tables, mais employées dans les résultats, où elles portent sur des constantes.

$li\ q = \int_0^q \dfrac{dx}{lx}$, le Logarithme intégral

$Ei\ q = \int_{-q}^{\infty} \dfrac{e^{-x}\,dx}{x}$, l' Exponentielle intégrale

$Si\ q = \int_0^q \dfrac{Sin\,x\,dx}{x}$, le Sinus intégral

$Ci\ q = \int_{\infty}^q \dfrac{Cos\,x\,dx}{x}$, le Cosinus intégral

$\Gamma(q) = \int_0^{\infty} e^{-x}\, x^{q-1}\, dx$, Fonction Gamma

$Z'(q) = \dfrac{d}{dq} \cdot l\Gamma(q)$

$Y(p, \varphi) = \int_0^{\varphi} \dfrac{E(p, \varphi)\, d\varphi}{\sqrt{1 - p^2\, Sin^2 \varphi}}$

Ces fonctions sont comprises sous la dénomination d' Autres Fonctions.

$\left(\dfrac{a}{b}\right)$, le coefficient $b^{ième}$ de la puissance $a^{ième}$ du binôme.

$c^{a/b}$, faculté analytique (notation de Kramp).

B_{2a-1}, coëfficient ou nombre Bernoullien.

$\mathcal{E}\, q$, le plus grand entier contenu dans q.

AVIS: Quelquefois on trouve deux formules sur une même ligne.

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PARTIE PREMIÈRE.

PARTIE PREMIÈRE.

F. Alg. rat. ent. | TABLE 1. | Lim. 0 et 1.

1) $\int (1-x^2)^a dx = \frac{(2^{a/2})^2}{1^{2a+1/1}}$ (VIII, 239).

2) $\int (1-x)^{p-1} x\, dx = \frac{1}{p(p+1)}$ (VIII, 319).

3) $\int (1-x)^p x^{1-p} dx = \frac{1}{2} p\pi (1-p) \, Cosec\, p\pi =$

4) $\int (1-x)^{1-p} x^p dx \, [p^2 < 1]$ (IV, 27).

5) $\int (1-x)^{p-1} x^{q-1} dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} = \frac{1^{p-1/1}}{q^{p/1}} = \left[\begin{matrix} p \\ q \end{matrix}\right]' = B(p,q)$, l' intégrale Eulérienne de première espèce (VIII, 262).

6) $\int (1-x)^{q+b-1} x^{p+a-1} dx = \frac{p^{a/1} q^{b/1}}{(p+q)^{a+b/1}} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 262).

7) $\int (1-x)^{b-p} x^{p+c} dx = \frac{(1+p)^{c/1}(1-p)^{b/1}}{1^{b+c+1/1}} \frac{p\pi}{Sin\, p\pi} =$

8) $\int (1-x)^{p+c} x^{b-p} dx$ (IV, 28).

9) $\int (1-x)^{b-p} x^{p-c} dx = \frac{(1-p)^{b/1}}{p^{c/-1} 1^{b-c+1/1}} \frac{p\pi}{Sin\, p\pi} =$

10) $\int (1-x)^{p-c} x^{b-p} dx$ (IV, 28).

11) $\int (1-x^2)^q x^{2a-1} dx = \frac{1^{a-1/1}}{2 \, . \, (q+1)^{a/1}}$ (VIII, 238).

12) $\int (1-x^2)^q x^{2a} dx = \frac{2^{q/2}}{(2a+1)^{q+1/2}}$ (VIII, 238).

13) $\int (1-x^r)^{p-1} x^{q-1} dx = r^{p-1} \frac{1^{p-1/1}}{q^{p/r}} = \frac{1}{pr} \frac{pr+q}{(p+1)q} \cdot \frac{2(pr+q+r)}{(p+2)(q+r)} \cdot \frac{3(pr+q+2r)}{(p+3)(q+2r)} \cdots$ (VIII, 233, 234).

14) $\int (1-x)^{a-1} (1+qx^b)^c x^{p-1} dx = 1^{a-1/1} \sum_0^\infty \binom{c}{n} \frac{q^n}{(p+nb)^{a/1}} \; [q^2 < 1]$ (VIII, 475).

15) $\int [(1+x)^{p-1}(1-x)^{q-1} + (1+x)^{q-1}(1-x)^{p-1}] dx = 2^{p+q-1} \frac{\Gamma(q)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 631).

16) $\int [p^r x^{r-1} (1-px)^{q-1} + (1-p)^q x^{q-1} \{1-(1-p)x\}^{r-1}] dx = \frac{\Gamma(q)\Gamma(r)}{\Gamma(q+r)}$ (VIII, 631).

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1) $\int \frac{x^{p-1}\,dx}{1+x} = \sum_0^\infty \frac{(-1)^n}{p+n}$ (VIII, 577) $= \frac{1}{2}Z'\left(\frac{p+1}{2}\right) - \frac{1}{2}Z'\left(\frac{p}{2}\right)$ (IV, 29).

2) $\int \frac{1-x^{p-1}}{1-x}\,dx = \sum_1^{p-1}\frac{1}{n} = A + Z'(p)$ $[p^2 < 1]$ (VIII, 320, 602).

3) $\int \frac{1-x^p}{1-x}\,x^{q-1}\,dx = Z'(p+q) - Z'(q)$ (VIII, 602).

4) $\int \frac{x^q - x^p}{1-x}\,dx = Z'(1+p) - Z'(1+q)$ $[p^2 < 1,\ q^2 < 1]$ (VIII, 602).

5) $\int \frac{(1-x)^{q-r-1}\,x^{r-1}\,dx}{1-px} = \frac{\Gamma(r)\,\Gamma(q-r)}{\Gamma(q)}\sum_0^\infty \frac{r^{n/1}}{q^{n/1}}\,p^n$ $[q > r > 0]$ (VIII, 475).

6) $\int \frac{1-q^a x^a}{1-qx}\,(1-x)^p\,dx = \sum_1^a \frac{q^{n-1}\,1^{n-1/1}}{(p+1)^{n-1/1}}$ (VIII, 475).

7) $\int \frac{x^p\,dx}{1+x^2} = \frac{1}{4}Z'\left(\frac{p+3}{4}\right) - \frac{1}{4}Z'\left(\frac{p+1}{4}\right)$ V. T. 2, N. 1.

8) $\int \frac{dx}{1-p^2x^2} = \frac{1}{2p}\,l\,\frac{1+p}{1-p}$ $[p^2 < 1]$ (VIII, 323).

9) $\int \frac{x^p - x^q}{1-x^2}\,dx = \frac{1}{2}Z'\left(\frac{q+1}{2}\right) - \frac{1}{2}Z'\left(\frac{p+1}{2}\right)$ V. T. 2, N. 4.

10) $\int \frac{1-x^3}{1-x^4}\,dx = \frac{1}{8}\pi + \frac{3}{4}\,l2$ (IV, 30).

11) $\int \frac{1-x}{1-x^4}\,x^2\,dx = -\frac{1}{8}\pi + \frac{3}{4}\,l2$ (IV, 30).

12) $\int \frac{dx}{x^{1-p} + x^{1+p}} = \frac{\pi}{4p}$ V. T. 4, N. 14.

13) $\int \frac{x^{p-1}\,dx}{1+x^q} = \frac{1}{2q}Z'\left(\frac{p+q}{2q}\right) - \frac{1}{2q}Z'\left(\frac{p}{2q}\right)$ V. T. 2, N. 1.

14) $\int \frac{x^{p-1} + x^{q-p-1}}{1+x^q}\,dx = \frac{\pi}{q}\,Cosec\frac{p\pi}{q}$ (IV, 30).

15) $\int \frac{x^{q-1}\,dx}{1-x^b} = -\frac{1}{b}\sum_1^b Cos\frac{2qn\pi}{b}\,.\,l\,Sin\frac{n\pi}{b} - \frac{\pi}{b^2}\sum_1^b n\,Sin\frac{2qn\pi}{b}$ (IV, 31).

16) $\int \frac{x^{p-1} - x^{q-p-1}}{1-x^q}\,dx = \frac{\pi}{q}\,Cot\frac{p\pi}{q}$ (IV, 31).

17) $\int \frac{x^{q-1} - x^{p-1}}{1-x^q}\,dx = \frac{1}{q}\left\{A + Z'\left(\frac{p}{q}\right)\right\}$ (IV, 31).

18) $\int \frac{x^{q-1} + x^{p-1}}{x^{p+q}+1}\,dx = \frac{\pi}{p+q}\,Sec\left(\frac{q-p}{q+p}\,\frac{\pi}{2}\right)$ V. T. 4, N. 14.

19) $\int \frac{x^{q-1} - x^{p-1}}{x^{p+q}-1}\,dx = \frac{\pi}{p+q}\,Tang\left(\frac{q-p}{q+p}\,\frac{\pi}{2}\right)$ V. T. 4, N. 15.

1) $\int \frac{x^{a-1}\,dx}{(1+x)^b} = \frac{1}{2^a} \sum_0^\infty \binom{b-a-1}{n} \frac{1}{(a+n)(-2)^n}$ (IV, 31).

2) $\int \frac{x^{p-1}\,dx}{(1+x)^{2p}} = \frac{1}{2^{2p}} \frac{\Gamma(p)}{\Gamma(p+\frac{1}{2})} \sqrt{\pi}$ (VIII, 295).

3) $\int \frac{x^{q-1}+x^{p-1}}{(1+x)^{p+q}}\,dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (IV, 32).

4) $\int \frac{x^p\,dx}{(1-x)^p} = \frac{p\pi}{Sin\,p\pi}\,[p^2<1]$ V. T. 1, N. 5.

5) $\int \frac{x^p\,dx}{(1-x)^{p+1}} = -\frac{\pi}{Sin\,p\pi}\,[p^2<1]$ V. T. 1, N. 5.

6) $\int \frac{x^{p+1}\,dx}{(1-x)^p} = \frac{1+p}{2} \frac{p\pi}{Sin\,p\pi}\,[p^2<1]$ V. T. 1, N. 5.

7) $\int \frac{x^{q-2}\,dx}{(1+px)^q} = \frac{(1+p)^{1-q}}{q-1}$ V. T. 3, N. 8.

8) $\int \frac{x^{p-1}(1-x)^{q-1}\,dx}{(1+sx)^{p+q}} = \frac{1}{(1+s)^p} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 513).

9) $\int \frac{x^{p-1}(1-x)^{q-1}\,dx}{(1+sx)^r} = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} \sum_0^\infty \frac{r^{n/1}}{1^{n/1}} \frac{p^{n/1}}{(p+q)^{n/1}} s^n$ (VIII, 513).

10) $\int \frac{x^{r-1}(1-x)^{q-r-1}\,dx}{(1-sx)^p} = \frac{\Gamma(r)\Gamma(q-r)}{\Gamma(q)} \sum_0^\infty \binom{-p}{n} \frac{r^{n/1}}{q^{n/1}} s^n$ (VIII, 476).

11) $\int \frac{x^q\,dx}{(1+x^2)^2} = \frac{1-q}{8} \left\{ Z'\left(\frac{q+3}{4}\right) - Z'\left(\frac{q+1}{4}\right) \right\} + \frac{1}{4}$ (IV, 32).

12) $\int \frac{x^{2p-2}\,dx}{(1-x^2)^p} = \frac{\Gamma(2p-1)\Gamma(1-p)}{2^{2p-1}\Gamma(p)}$ (IV, 33).

13) $\int \frac{x^{pi}+x^{-pi}}{(1+x^q)^2} x^{q-1}\,dx = \frac{\pi}{q^2} \frac{p}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (IV, 33).

F. Alg. rat. fract. à dén. $(a \pm b x^c)^d x^e$. TABLE 4. Lim. 0 et 1.

1) $\int \frac{x^{p-1}+x^{-p}}{1+x}\,dx = \pi\,Cosec\,p\pi$ (VIII, 486).

2) $\int \frac{x^p - x^{-p}}{1+x}\,dx = \frac{1}{p} - \pi\,Cosec\,p\pi$ (VIII, 532).

3) $\int \frac{x^{-p} - x^p}{1-x}\,dx = \frac{1}{p} - \pi\,Cot\,p\pi$ (VIII, 620).

4) $\int \frac{x^{p-1} - x^{-p}}{1-x}\,dx = \pi\,Cot\,p\pi$ (VIII, 485).

5) $\int \frac{x^q - x^p}{1-x} \frac{dx}{x} = Z'(p) - Z'(q)$ (IV, 33).

6) $\int \left(\frac{1-x}{x}\right)^p \frac{dx}{1-x} = \pi\,Cosec\,p\pi$ (VIII, 486).

7) $\int \frac{x^p + x^{-p}}{1+x^2}\,dx = \frac{1}{2}\pi\,Sec\,\frac{1}{2}p\pi\,[p<1]$ V. T. 27, N. 4.

8) $\int \frac{x^p - x^{-p}}{1+x^2} x\,dx = \frac{1}{p} - \frac{1}{2}\pi\,Cosec\,\frac{1}{2}p\pi$ V. T. 4, N. 2.

9) $\int \frac{(x^p+x^{-p})(x^q+x^{-q})}{1+x^2}\,dx = 2\pi \frac{Cos\,\frac{1}{2}p\pi \,.\, Cos\,\frac{1}{2}q\pi}{Cos\,p\pi + Cos\,q\pi}\,[p<1,\ q<1]$ V. T. 27, N. 5.

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10) $\int \frac{(x^p - x^{-p})(x^q - x^{-q})}{1+x^2} dx = 2\pi \frac{Sin \frac{1}{2} p\pi \,.\, Sin \frac{1}{2} q\pi}{Cos\, p\pi + Cos\, q\pi}$ $[p<1,\ q<1]$ V. T. 27, N. 6.

11) $\int \frac{x^p - x^{-p}}{1-x^2} dx = -\frac{1}{2}\pi\, Tg \frac{1}{2} p\pi$ (VIII, 531).

12) $\int \frac{x^p - x^{-p}}{1-x^2} x\, dx = \frac{1}{2}\pi\, Cot \frac{1}{2} p\pi - \frac{1}{p}$ V. T. 4, N. 3.

13) $\int \frac{(x^p - x^{-p})(x^q + x^{-q})}{1-x^2} dx = \frac{-\pi\, Sin\, p\pi}{Cos\, p\pi + Cos\, q\pi}$ $[p<1]$ V. T. 27, N. 11.

14) $\int \frac{x^q + x^{-q}}{x^p + x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} Sec \frac{q\pi}{2p}$ (VIII, 296*). 15 $\int \frac{x^q - x^{-q}}{x^p - x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} Tang \frac{q\pi}{2p}$ (VIII, 296*).

16) $\int \frac{1}{(x^q + x^{-q})^{2p}} \frac{dx}{x} = \frac{\{\Gamma(p)\}^2}{4q \,.\, \Gamma(2p)}$ V. T. 27, N. 17.

17) $\int \frac{x^{q-p} + x^{p-q}}{\left(x+\frac{1}{x}\right)^{p+q}} \frac{dx}{x} = \frac{1}{2} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 3, N. 3.

18) $\int \frac{\left(x-\frac{1}{x}\right)^{2q}}{\left(x^2+\frac{1}{x^2}\right)^{p+\frac{1}{2}}} \left(x+\frac{1}{x}\right) \frac{dx}{x} = 2^{q-p-1} \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

F. Alg. rat. fract. à dén. produit de bin. TABLE 5. Lim. 0 et 1.

1) $\int \frac{x^{q-1}}{(1-x)^q} \frac{dx}{1+px} = \frac{\pi}{(1+p)^q} Cosec\, q\pi$ (VIII, 513).

2) $\int \frac{x^{q-1}}{(1-x)^q} \frac{dx}{x+p} = \frac{p^{q-1}}{(1+p)^q} \pi\, Cosec\, q\pi$ (VIII, 624).

3) $\int \frac{1-x^a}{(1+x)^{a+1}} \frac{dx}{1-x} = \frac{1}{2^{a+1}} \sum_1^a \frac{2^n}{n}$ (IV, 35).

4) $\int \frac{x^{q-1}}{(1-x)^{1-r}} \frac{dx}{(x+p)^{q+r}} = \frac{\Gamma(q)\Gamma(r)}{\Gamma(q+r)} \frac{1}{p^r(1+p)^q}$ (VIII, 624).

5) $\int \frac{x^{r-1}}{(1-x)^r} \frac{dx}{(1+px)^a} = \frac{\pi}{Sin\, r\pi} \frac{1}{(1+p)^r} \sum_0^\infty (-1)^n \binom{a-1}{n} \binom{r}{n} \left(\frac{p}{1+p}\right)^n$ (IV, 35).

6) $\int \frac{x^{r+p-2}}{(1-x)^p} \frac{dx}{(1+qx)^r} = (1+q)^{1-r-p} \frac{\Gamma(r+p-1)\Gamma(1-p)}{\Gamma(r)}$ $\left[\begin{matrix} r+p>1>p, \\ q+1>0 \end{matrix}\right]$ (IV, 35).

7) $\int \frac{x^{r-1}}{(1-x)^r} \frac{dx}{(1+px)(1+qx)} = \frac{\pi}{(p-q)\, Sin\, r\pi} \left\{\frac{p}{(1+p)^r} - \frac{q}{(1+q)^r}\right\}$ (VIII, 338).

8) $\int \frac{1}{(1-x)^{1-p}\,x^p}\,\frac{dx}{q-rx} = \frac{\pi}{(q-r)^{1-p}\,q^p\,Sin\,p\pi}$ $[p<1,\ q\gtrless r]$ (VIII, 559).

9) $\int \frac{1}{(1-x)^{1-p}\,x^p}\,\frac{dx}{(q-rx)^{a+1}} = \frac{p^{a/1}}{1^{a/1}}\,\frac{\pi\,Cosec\,p\pi}{q^p\,(q-r)^{a+1-p}} \sum_0^a \frac{(1-p)(2-p)\dots(a-p-n)}{(a+p-1)(a+p-2)\dots(p+n)} \binom{a}{n}$
$\left(\frac{q-r}{q}\right)^n$ $\left[\begin{matrix} p<1, \\ q \lesseqgtr r \end{matrix}\right]$ (IV, 35).

10) $\int \left[\frac{x^{q-1}}{1+px} + \frac{x^{-q}}{p+x}\right] dx = \frac{\pi}{p^q}\,Cosec\,q\pi$ (VIII, 631).

11) $\int \left[\frac{x^{q-1}}{1-px} - \frac{x^{-q}}{p-x}\right] dx = \frac{\pi}{p^q}\,Cot\,q\pi$ (VIII, 631).

12) $\int \left[\frac{x^{p-1}}{1-x} - \frac{q\,x^{pq-1}}{1-x^q}\right] dx = l\,q$ (VIII, 268).

13) $\int \left[\frac{b\,x^{b-1}}{1-x^b} - \frac{x^{ab-1}}{1-x}\right] dx = \mathrm{A} + \frac{1}{b}\sum_1^b \mathrm{Z}'\left(a + \frac{b-n}{b}\right)$ (IV, 35).

14) $\int \left[\frac{1}{1-x} - \frac{p\,x^{p-1}}{1-x^p}\right] dx = l\,p$ (VIII, 267).

15) $\int \left[\frac{e^{pi}}{1+e^{api}\,x^a} + \frac{e^{-pi}}{1+e^{-api}\,x^a}\right] dx = 2\sum_0^\infty \frac{(-1)^n}{na+1}\,Cos\,\{(na+1)p\}$

16) $\int \left[\frac{e^{pi}}{1+e^{api}\,x^a} - \frac{e^{-pi}}{1+e^{-api}\,x^a}\right] dx = 2\sum_0^\infty \frac{(-1)^n}{na+1}\,Sin\,\{(na+1)p\}$

(15, 16) $[a^2 p^2 < \pi^2]$ (IV, 36).

1) $\int \frac{dx}{1-2px+x^2} = \frac{1}{\sqrt{1-p^2}}\,Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)$ $[p^2<1]$, $= \frac{1}{2\sqrt{p^2-1}}\,l\,\{p-\sqrt{p^2-1}\}$
$[p^2>1]$ (VIII, 217, 230).

2) $\int \frac{x\,dx}{1-2px+x^2} = \frac{1}{2}\,l\,\{2(1-p)\} + \frac{p}{\sqrt{1-p^2}}\,Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)$ $[p^2<1]$, $= \frac{1}{2}\,l\{2(p-1)\} -$
$- \frac{p}{2\sqrt{p^2-1}}\,l\,\{p+\sqrt{p^2-1}\}$ $[p^2>1]$ (VIII, 219, 232).

3) $\int \frac{dx}{1+2x\,Cos\,\lambda+x^2} = \frac{1}{2}\,\lambda\,Cosec\,\lambda$ (VIII, 196).

4) $\int \frac{x\,dx}{1+2x\,Cos\,\lambda+x^2} = l\left(2\,Cos\,\frac{1}{2}\lambda\right) - \frac{1}{2}\,\lambda\,Cot\,\lambda$ (VIII, 199).

5) $\int \frac{1-x}{1-2x\,Cos\,\lambda+x^2}\,dx = Cosec\,\lambda\,.\sum_1^\infty \frac{Sin\,n\lambda}{n(n+1)}$ (VIII, 476).

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6) $\int \frac{1-x^2}{1+2x\,Cos\lambda+x^2}\,dx = Cos\lambda\,.\,l\{2(1+Cos\lambda)\}+\lambda\,Sin\lambda-1$ (VIII, 338).

7) $\int \frac{x^c\,dx}{1+2x\,Cos\frac{a\pi}{b}+x^2} = \frac{1}{2b}\,Cosec\frac{a\pi}{b}\,.\,\sum_0^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c+n}{2b}\right)-Z'\left(\frac{c+n}{2b}\right)\right\}$

$\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right] = \frac{1}{b}\,Cosec\frac{a\pi}{b}\,.\sum_0^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left\{Z'\left(\frac{b+c-n}{b}\right)-Z'\left(\frac{c+n}{b}\right)\right\}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 37).

8) $\int \frac{x^p+x^{-p}}{1+2x\,Cos\lambda+x^2}\,dx = \frac{\pi\,Sin\,p\lambda}{Sin\,p\pi\,.\,Sin\lambda}$ $[p<1]$ (VIII, 321).

9) $\int \frac{1-x\,Cos\lambda}{1-2x\,Cos\lambda+x^2}\,x^{r-1}\,dx = \sum_0^\infty \frac{Cos\,n\lambda}{n+r}$

10) $\int \frac{x^r\,dx}{1-2x\,Cos\lambda+x^2} = Cosec\lambda\,.\sum_1^\infty \frac{Sin\,n\lambda}{n+r}$

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11) $\int \frac{1-x\,Cos\lambda-x^{a+1}\,Cos\{(a+1)\lambda\}+x^{a+2}\,Cos\,a\lambda}{1-2x\,Cos\lambda+x^2}\,dx = \sum_0^a \frac{Cos\,n\lambda}{n+1}$ (VIII, 475).

12) $\int \frac{Sin\lambda-x^a\,Sin\{(a+1)\lambda\}+x^{a+1}\,Sin\,a\lambda}{1-2x\,Cos\lambda+x^2}\,x\,dx = \sum_1^a \frac{Sin\,n\lambda}{n+1}$ (VIII, 476).

13) $\int \frac{Sin\lambda-q^a x^a\,Sin\{(a+1)\lambda\}+q^{a+1}x^{a+1}\,Sin\,a\lambda}{1-2qx\,Cos\lambda+q^2x^2}(1-x)^p\,dx = \Gamma(p+1)\sum_1^a \frac{q^{n-1}\,Sin\,n\lambda}{\Gamma(n+p+1)}1^{n-1/1}$ (VIII, 476).

14) $\int \frac{Cos\lambda-qx-q^a x^a\,Cos\{(a+1)\lambda\}+q^{a+1}x^{a+1}\,Cos\,a\lambda}{1-2qx\,Cos\lambda+q^2x^2}(1-x)^p\,dx = \Gamma(p+1)\sum_1^a \frac{q^{n-1}\,Cos\,n\lambda}{\Gamma(n+p+1)}1^{n-1/1}$ (VIII, 476).

15) $\int \frac{1+x^2}{1-2x^2\,Cos\lambda+x^4}\,dx = \frac{1}{4}\pi\,Cosec\frac{1}{2}\lambda$ (VIII, 218).

16) $\int \frac{x^{a-b-1}+x^{a+b-1}}{1-2x^a\,Cos\lambda+x^{2a}}\,dx = \frac{\pi\,Sin\frac{b\lambda}{a}}{a\,Sin\lambda\,.\,Sin\frac{b\pi}{a}}$ V. T. 6, N. 8.

17) $\int \frac{x^c\,dx}{\left(1+2x\,Cos\frac{a\pi}{b}+x^2\right)^2} = \frac{1}{4b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2}+\sum_0^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c+n}{2b}\right)-\right.\right.\right.$

$\left.\left.\left.-Z'\left(\frac{c+n}{2b}\right)\right\}-c\,Cos\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c+n-1}{2b}\right)-Z'\left(\frac{c+n-1}{2b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right] =$

$= \frac{1}{2b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2}+\sum_0^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c-n}{b}\right)-Z'\left(\frac{c+n}{b}\right)\right\}-\right.\right.$

$\left.\left.-c\,Cos\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c-n-1}{b}\right)-Z'\left(\frac{c+n-1}{b}\right)\right\}\right]\right\}$ $\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ V. T. 6, N. 7.

18) $\int \frac{x^{1+p}+x^{1-p}}{(1+2x\,Cos\lambda+x^2)^2}\,dx = \frac{\pi\,Cosec\,p\pi}{2\,Sin^3\lambda}\left\{p\,Sin\lambda\,.\,Cos\,p\lambda - Cos\lambda\,.\,Sin\,p\lambda\right\}$ V. T. 6, N. 8.

19) $\int \frac{x^p+x^{-p}}{x^q+2\,Cos\lambda+x^{-q}}\,\frac{dx}{x} = \frac{\pi}{q}\,\frac{Sin\frac{p\lambda}{q}}{Sin\lambda\,.\,Sin\frac{p\pi}{q}}$ V. T. 6, N. 8.

20) $\int \frac{x^p-2\,Cos\lambda+x^{-p}}{x^q-2\,Cos\mu+x^{-q}}\,\frac{dx}{x} = \frac{\pi}{q}\,\frac{Sin\left(\frac{\pi-\mu}{q}p\right)}{Sin\mu\,.\,Sin\frac{p\pi}{q}} - \frac{\pi-\mu}{q\,Sin\mu}\,Cos\lambda$ V. T. 6, N. 3 et 8.

21) $\int \frac{x^{q-1}}{1+2px\,Cos\lambda+p^2x^2}\,\frac{dx}{(1-x)^q} = \frac{\pi}{Sin\,q\pi\,.\,Sin\lambda\,.\,(1+2p\,Cos\lambda+p^2)^{\frac{1}{2}q}}\,Sin\left\{\lambda - q\,Arctg\left(\frac{p\,Sin\lambda}{1+p\,Cos\lambda}\right)\right\}$ (IV, 38).

F. Alg. irrat. ent. et à dén. monôme. TABLE 7. Lim. 0 et 1.

1) $\int (1-x^2)^{a-\frac{1}{2}}\,dx = \frac{1^{a/2}}{1^{a/1}}\,\frac{\pi}{2^{a+1}}$ V. T. 8, N. 13.

2) $\int x^{2a-1}\,dx\,\sqrt{1-x^2} = \frac{2^{a-1/2}}{3^{a/2}}$ (VIII, 238).

3) $\int x^{2a}\,dx\,\sqrt{1-x^2} = \frac{3^{a-1/2}}{4^{a/2}}\,\frac{\pi}{4}$ (VIII, 238).

4) $\int x^{2a}(1-x^2)^{b-\frac{1}{2}}\,dx = \frac{1^{a/2}\,1^{b/2}}{1^{a+b/1}}\,\frac{\pi}{2^{a+b+1}}$ (VIII, 238).

5) $\int x^{2a-1}(1-x^2)^{b-\frac{1}{2}}\,dx = \frac{2^{a-1/2}}{(2b+1)^{a/2}}$ (VIII, 238).

6) $\int (1-x^2)^{1-\frac{1}{2}q}(1-p^2x^2)^{1-\frac{1}{2}q}\,x^q\,dx = \frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{\sqrt{\pi}\,(q-1)\,(q-3)\,(q-5)}\,\frac{1}{p^3}\left\{\frac{1+(q-3)p+p^2}{(1+p)^{q-3}} - \frac{1-(q-3)p+p^2}{(1-p)^{q-3}}\right\}$ (IV, 39).

7) $\int (1-\sqrt{x})^{p-1}\,dx = \frac{2}{p(p+1)}$ (VIII, 320).

8) $\int (1-x)^{r-1}\,\frac{dx}{\sqrt{x}} = \frac{\Gamma(r)\sqrt{\pi}}{\Gamma(r+\frac{1}{2})}$ (VIII, 295).

F. Alg. irrat. fract. à dén. $(1\pm x)^a$, $(1\pm x^2)^a$. TABLE 8. Lim. 0 et 1.

1) $\int \frac{x^a\,dx}{\sqrt{1-x}} = 2\,\frac{2^{a/2}}{3^{a/2}}$ (VIII, 289*).

2) $\int \frac{x^{a-\frac{1}{2}}\,dx}{\sqrt{1-x}} = \frac{1^{a/2}}{2^{a/2}}\,\pi$ V. T. 8, N. 13.

3) $\int dx\sqrt{\frac{1-p^2x}{1-x}} = 1 + \frac{1-p^2}{2p}\,l\frac{1+p}{1-p}$ $[p<1]$ V. T. 53, N. 2.

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4) $\int x\,dx \sqrt{\frac{1-p^2 x}{1-x}} = \frac{3p^2-1}{4p^2} + \frac{1+3p^2}{8}\,\frac{1-p^2}{p^3}\, l\frac{1+p}{1-p}$ V. T. 53, N. 9.

5) $\int x^2\,dx \sqrt{\frac{1-p^2 x}{1-x}} = \frac{(5p^2-3)(3p^2+1)}{24p^4} + \frac{1+2p^2+5p^4}{16}\,\frac{1-p^2}{p^5}\, l\frac{1+p}{1-p}$ V. T. 53, N. 18.

6) $\int dx \sqrt{\frac{(1-p^2 x)^3}{1-x}} = \frac{5-3p^2}{4} + \frac{3}{8}\,\frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}$ V. T. 54, N. 2.

7) $\int x\,dx \sqrt{\frac{(1-p^2 x)^3}{1-x}} = \frac{-3+22p^2-15p^4}{24p^2} + \frac{1+5p^2}{16}\,\frac{(1-p^2)^2}{p^3}\, l\frac{1+p}{1-p}$ V. T. 54, N. 5.

[Dans N. 3 à 7 on a $p < 1$]

8) $\int \frac{x^{a-1} + x^{a-\frac{1}{2}} - 2x^{2a-1}}{1-x}\,dx = 2\,l2$ (IV, 47).

9) $\int \frac{x^{a-1} + x^{a-\frac{2}{3}} + x^{a-\frac{1}{3}} - 3x^{3a-1}}{1-x}\,dx = 3\,l3$ (IV, 47).

10) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^{2p}} = \frac{2^{1-2p}}{1-2p}\,\frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}}$ $[p < \frac{1}{2}]$ (IV, 43).

11) $\int \frac{x^{p+\frac{1}{2}}\,dx}{(1-x)^{p+\frac{1}{2}}} = \frac{2p+1}{2}\,\pi\, Sec\, p\pi$ V. T. 3, N. 4.

12) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^{p+\frac{1}{2}}} = \pi\, Sec\, p\pi$ V. T. 3, N. 5.

13) $\int \frac{x^{2a}\,dx}{\sqrt{1-x^2}} = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{2}$ (VIII, 239).

14) $\int \frac{x^{2a-1}\,dx}{\sqrt{1-x^2}} = \frac{2^{a-1/2}}{1^{a/2}}$ (VIII, 239).

15) $\int dx \sqrt{\frac{1-p^2x^2}{1-x^2}} = \mathrm{E}'(p)$ (VIII, 549).

16) $\int x^2\,dx \sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{3p^2}\,[(1-p^2)\mathrm{F}'(p) - (1-2p^2)\mathrm{E}'(p)]$ (VIII, 549).

17) $\int x^4\,dx \sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{15p^4}\,[2(1+2p^2)(1-p^2)\mathrm{F}'(p) - (2+3p^2-8p^4)\mathrm{E}'(p)]$ V. T. 53, N. 13.

18) $\int x^6\,dx \sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{105p^6}\,[(8+13p^2+24p^4)(1-p^2)\mathrm{F}'(p) - (8+9p^2+16p^4-48p^6)\mathrm{E}'(p)]$

V. T. 53, N. 24.

19) $\int dx \sqrt{\frac{(1-p^2x^2)^3}{1-x^2}} = \frac{2-p^2}{3}\,2\mathrm{E}'(p) - \frac{1-p^2}{3}\,\mathrm{F}'(p)$ (VIII, 549).

20) $\int x^2\,dx \sqrt{\frac{(1-p^2x^2)^3}{1-x^2}} = \frac{1}{15p^2}\,[(3-4p^2)(1-p^2)\mathrm{F}'(p) - (3-13p^2+8p^4)\mathrm{E}'(p)]$ V. T. 54, N. 3.

21) $\int x^4\,dx \sqrt{\frac{(1-p^2x^2)^3}{1-x^2}} = \frac{1}{35p^4}\,[(2+5p^2-8p^4)(1-p^2)\mathrm{F}'(p) - (1+2p^2-12p^4+8p^6)2\mathrm{E}'(p)]$

V. T. 54, N. 7. [Dans N. 15 à 21 on a $p < 1$]

22) $\int \frac{dx \sqrt[3]{x}}{\sqrt{1-x^2}} = \frac{1-\sqrt{3}}{\sqrt[4]{3}} \mathrm{F}'\left(Cos \frac{\pi}{12}\right) + 2\sqrt[4]{3} \,.\, \mathrm{E}'\left(Cos \frac{\pi}{12}\right)$ (VIII, 301).

23) $\int \frac{dx \sqrt[3]{x^2}}{\sqrt{1-x^2}} = 3\sqrt[4]{3} \,.\, \mathrm{E}'\left(Sin \frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}} \mathrm{F}'\left(Sin \frac{\pi}{12}\right)$ (VIII, 302).

24) $\int \frac{x^{p-\frac{1}{2}} dx}{(1-x^2)^p} = \frac{2^{\frac{3}{2}-p}}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} \,.\, Sin\left(\frac{2p-1}{4}\pi\right)$ $[p<1]$ (IV, 43).

25) $\int \frac{x^{p-1}+x^{q-1}}{(1-x^2)^{\frac{1}{2}(p+q)}} dx = \frac{Cos\left(\frac{q-p}{4}\pi\right)}{2\, Cos\left(\frac{q+p}{4}\pi\right)} \frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\{\frac{1}{2}(p+q)\}}$ (IV, 44).

26) $\int \frac{x^{p-1}-x^{q-1}}{(1-x^2)^{\frac{1}{2}(p+q)}} dx = \frac{Sin\left(\frac{q-p}{4}\pi\right)}{2\, Sin\left(\frac{q+p}{4}\pi\right)} \frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\{\frac{1}{2}(p+q)\}}$ (IV, 44).

27) $\int dx \sqrt{\frac{1-x^2}{1+x^2}} = \sqrt{2} \,.\, \left[\mathrm{F}'\left(Sin \frac{\pi}{4}\right) - \mathrm{E}'\left(Sin \frac{\pi}{4}\right)\right]$ (VIII, 321).

F. Alg. irrat. fract. à dén. $(1-x^a)^b$. TABLE 9. Lim. 0 et 1.

1) $\int \frac{dx}{\sqrt{1-x^3}} = \frac{2}{\sqrt[4]{27}} \mathrm{F}'\left(Sin \frac{\pi}{12}\right)$ (IV, 44).

2) $\int \frac{dx}{\sqrt[3]{1-x^3}} = \frac{2\pi}{3\sqrt{3}} =$ 3) $\int \frac{x\,dx}{\sqrt[3]{1-x^3}^2}$ (VIII, 292).

4) $\int \frac{x\,dx}{\sqrt[3]{1-x^3}} = \frac{\sqrt[3]{4}}{2\sqrt[4]{3}} \frac{\pi}{\mathrm{F}'\left(Cos \frac{\pi}{12}\right)}$ (IV, 44).

5) $\int \frac{dx}{\sqrt[3]{1-x^3}^2} = \frac{4}{3\sqrt[3]{4}\,.\,\sqrt[4]{3}} \mathrm{F}'\left(Cos \frac{\pi}{12}\right)$ (IV, 44). 6) $\int \frac{x^{3a}\,dx}{\sqrt[3]{1-x^3}} = \frac{1^{a/3}}{3^{a/3}} \frac{2\pi}{3\sqrt{3}}$ (IV, 44).

7) $\int \frac{x^{3a-1}\,dx}{\sqrt[3]{1-x^3}} = \frac{3^{a-1/3}}{2^{a/3}}$ (IV, 44). 8) $\int \frac{dx}{\sqrt{1-x^4}} = \frac{1}{2}\sqrt{2} \,.\, \mathrm{F}'\left(Sin \frac{\pi}{4}\right)$ (VIII, 298).

9) $\int \frac{x^2\,dx}{\sqrt{1-x^4}} = \sqrt{2} \,.\, \mathrm{E}'\left(Sin \frac{\pi}{4}\right) - \frac{1}{\sqrt{2}} \mathrm{F}'\left(Sin \frac{\pi}{4}\right)$ (VIII, 321).

10) $\int \frac{dx}{\sqrt[4]{1-x^4}} = \frac{\pi}{2\sqrt{2}} =$ 11) $\int \frac{x^2\,dx}{\sqrt[4]{1-x^4}^3}$ (VIII, 292).

12) $\int dx \sqrt{\frac{1-p^2x^4}{1-x^4}} = \frac{c\mathrm{F}'(c)+b\mathrm{F}'(b)}{(b+c)^2} + \frac{b-c}{(b+c)^2}\{\mathrm{E}'(b)-\mathrm{E}'(c)\}$ $\left[\text{où } b^2 = \frac{(1+\sqrt{p})^2}{2(1+p)},\ c^2 = \frac{(1-\sqrt{p})^2}{2(1+p)}\right]$ (IV, 45).

13) $\int \frac{dx}{\sqrt{1-x^6}} = \frac{1}{\sqrt[4]{3}} E'\left(Sin\frac{\pi}{12}\right)$ (IV, 45).

14) $\int \frac{dx}{\sqrt[6]{1-x^6}} = \frac{\pi}{3} =$ 15) $\int \frac{x^4\,dx}{\sqrt[6]{1-x^6}^5}$ (VIII, 292).

16) $\int \frac{dx}{\sqrt{1-x^8}} = \frac{1}{\sqrt{2}} F'\left(Tang\frac{\pi}{8}\right)$ (IV, 45).

17) $\int \frac{dx}{\sqrt{1-x^{12}}} = \frac{1}{2\sqrt[4]{3}} F'\left(Sin\frac{\pi}{4}\right) + Sin\frac{\pi}{12} . F'\left(\frac{\sqrt{2}-\sqrt[4]{3}}{1+\sqrt{3}}\right)$ (IV, 45).

18) $\int \frac{dx}{\sqrt[q]{1-x^q}} = \frac{\pi}{q}\, Cosec\frac{\pi}{q} =$ 19) $\int \frac{x^{q-2}\,dx}{\sqrt[q]{1-x^q}^{q-1}}$ (VIII, 292).

20) $\int \frac{x^{p-1}\,dx}{\sqrt[q]{1-x^q}^p} = \frac{\pi}{q}\, Cosec\frac{p\pi}{q} =$ 21) $\int \frac{x^{q-p-1}\,dx}{\sqrt[q]{1-x^q}^{q-p}}$ (VIII, 292).

22) $\int \frac{x^{q+p-1}\,dx}{\sqrt[q]{1-x^q}^p} = \frac{p\pi}{q^2}\, Cosec\frac{p\pi}{q}$ V. T. 3, N. 4. 23) $\int \frac{x^{\frac{q}{p}-1}\,dx}{\sqrt[p]{1-x^q}} = \frac{\pi}{q}\, Cosec\frac{\pi}{p}$ (VIII, 293).

F. Alg. irrat. fract. à dén. comp. avec fact. mon. TABLE 10. Lim. 0 et 1.

1) $\int \frac{\sqrt{x}+\sqrt{\frac{1}{x}}}{1+x^2}\, dx = \frac{1}{2}\pi\sqrt{2}$ (IV, 47). 2) $\int \frac{x^a\,dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\pi$ V. T. 8, N. 13.

3) $\int \frac{(1-x)^a dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\pi$ V. T. 8, N. 13. 4) $\int \frac{(1-x)^a\, x^b\,dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}\,1^{b/2}}{2^{a+b/2}}\pi$ V. T. 7, N. 4.

5) $\int \frac{dx}{x^{\frac{1}{3}}\sqrt{1-x^2}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos\frac{\pi}{12}\right)$ (VIII, 301).

6) $\int \frac{dx}{x^{\frac{2}{3}}\sqrt{1-x^2}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303). 7) $\int dx\sqrt{\frac{1-p^2x}{x(1-x)}} = E'(p)$ V. T. 53, N. 1.

8) $\int dx\sqrt{\frac{(1-p^2x)^3}{x(1-x)}} = 4\,\frac{2-p^2}{3}\,E'(p) - \frac{1-p^2}{3}\,2F'(p)$ V. T. 54, N. 1.

9) $\int \frac{1}{q-px}\,\frac{dx}{\sqrt{x(1-x)}} = \frac{\pi}{\sqrt{q(q-p)}}$ $[0<p<q]$ (VIII, 559).

10) $\int \frac{1}{(q-px)^{a+1}}\,\frac{dx}{\sqrt{x(1-x)}} = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{(q-p)^a\sqrt{q(q-p)}}\sum_0^\infty \binom{a}{n}\frac{1^{n/2}}{(2a-1)^{n/-2}}\left(\frac{q-p}{q}\right)^n$ $[p\lesseqgtr q]$ (IV, 48).

11) $\int \frac{dx}{\sqrt{x(p+x)(1+px)}} = F'\{\sqrt{1-p^2}\}$ (VIII, 353).

12) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)}} = 2\,\mathrm{F}'(p)$ V. T. 57, N. 1.

13) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)^3}} = \frac{2}{1-p^2}\,\mathrm{E}'(p)$ V. T. 58, N. 1.

14) $\int \frac{dx}{\sqrt{x(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2}\left[2(2-p^2)\,\mathrm{E}'(p)-(1-p^2)\,\mathrm{F}'(p)\right]$ V. T. 59, N. 1.

15) $\int \frac{dx}{\sqrt{x(1-x)(1-px)(q+px)}} = \frac{2}{\sqrt{p+q}}\,\mathrm{F}'\left\{\sqrt{\frac{p(1+q)}{p+q}}\right\}$ (VIII, 312*).

16) $\int \frac{p^2-b^2-2p^2x}{\sqrt{x(b^2+p^2x)(b^2-p^2+p^2x)(1-x)}}\,dx = -\frac{\pi}{2}$ (VIII, 296).

17) $\int \frac{1}{1-2x\,Cos\,\lambda+x^2}\,\frac{dx}{\sqrt{x}} = 2\,Cosec\,\lambda\,.\,\sum_0^\infty \frac{Sin\,n\lambda}{2n-1}$ Del Grosso. Mem. Nap. T. 1, 37.

F. Alg. irrat. fract. à dén. à deux fact. $(1\pm x)$. TABLE 11. Lim. 0 et 1.

1) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^p(1+qx)^p} = \frac{2\,\Gamma(p+\frac{1}{2})\,\Gamma(1-p)}{\sqrt{\pi}}\,Cos^{2p}\left\{Arctg(\sqrt{q})\right\}\,.\,\frac{Sin\left\{(2p-1)\,Arctg(\sqrt{q})\right\}}{(2p-1)\,Sin\left\{Arctg(\sqrt{q})\right\}}$

2) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1-x)^p(1-qx)^p} = \frac{\Gamma(p+\frac{1}{2})\,\Gamma(1-p)}{\sqrt{\pi}}\,\frac{(1-\sqrt{q})^{1-2p}-(1+\sqrt{q})^{1-2p}}{(2p-1)\sqrt{q}}$

(for 1) and 2)) $\begin{bmatrix} p<1, \\ q<1 \end{bmatrix}$ (IV, 48).

3) $\int \frac{dx}{(1-px)\sqrt{1-x}} = \frac{1}{2\sqrt{p(1-p)}}\,Arcsin(\sqrt{p})$ (VIII, 466*).

4) $\int \frac{dx}{\sqrt{(1+p^2x)(1-x)}} = \frac{2}{p}\,Arctg\,p$ V. T. 60, N. 5.

5) $\int \frac{x\,dx}{\sqrt{(1+p^2x)(1-x)}} = \frac{2}{p^3}\left(Arctg\,p-\frac{p}{1+p^2}\right)$ V. T. 60, N. 6.

6) $\int \frac{dx}{\sqrt{(1-p^2x)(1-x)}} = \frac{1}{p}\,l\,\frac{1+p}{1-p}$ V. T. 57, N. 2.

7) $\int \frac{x\,dx}{\sqrt{(1-p^2x)(1-x)}} = -\frac{1}{p^2}+\frac{1+p^2}{2p^3}\,l\,\frac{1+p}{1+p}$ V. T. 57, N. 8.

8) $\int \frac{x^2\,dx}{\sqrt{(1-p^2x)(1-x)}} = \frac{1}{4p^4}\left[-3(1+p^2)+\frac{3+2p^2+3p^4}{2p}\,l\,\frac{1+p}{1-p}\right]$ V. T. 57, N. 17.

9) $\int \frac{dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{1-p^2}$ V. T. 58, N. 2.

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10) $\int \frac{x\,dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^2} - \frac{1}{p^3}\, l\frac{1+p}{1-p}$ V. T. 58, N. 8.

11) $\int \frac{x^2\,dx}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{1}{1-p^2}\left[2\,\frac{3-p^2}{p^4} - \frac{3+p^2}{p^5}(1-p^2)\, l\frac{1+p}{1-p}\right]$ V. T. 58, N. 17.

12) $\int \frac{dx}{\sqrt{(1-x)(1-p^2x)^5}} = 2\,\frac{3-p^2}{3(1-p^2)^2}$ V. T. 59, N. 2.

13) $\int \frac{x\,dx}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{4}{3(1-p^2)^2}$ V. T. 59, N. 8.

14) $\int \frac{x^2\,dx}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2}\left[\frac{-3+5p^2}{p^4} + 3\,\frac{(1-p^2)^2}{p^5}\, l\frac{1+p}{1-p}\right]$ V. T. 59, N. 17.

15) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{p^2}\,[F'(p) - E'(p)]$ V. T. 57, N. 5.

16) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{3p^4}\,[(2+p^2)F'(p) - 2(1+p^2)E'(p)]$ V. T. 57, N. 12.

17) $\int \frac{x^2\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)}} = \frac{2}{15p^6}\,[(8+3p^2+4p^4)F'(p) - (8+7p^2+8p^4)E'(p)]$ V. T. 57, N. 23.

18) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^2}\,[E'(p) - (1-p^2)F'(p)]$ V. T. 58, N. 5.

19) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{(1-p^2)p^4}\,[(2-p^2)E'(p) - 2(1-p^2)F'(p)]$ V. T. 58, N. 12.

20) $\int \frac{x^2\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^3}} = \frac{2}{3(1-p^2)p^6}\,[(8-3p^2-2p^4)E'(p) - (8+p^2)(1-p^2)F'(p)]$
V. T. 58, N. 23.

21) $\int \frac{dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^2}\,[(1+p^2)E'(p) - (1-p^2)F'(p)]$ V. T. 59, N. 5.

22) $\int \frac{x\,dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^4}\,[(2-3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)]$
V. T. 59, N. 12.

23) $\int \frac{x^2dx\sqrt{x}}{\sqrt{(1-x)(1-p^2x)^5}} = \frac{2}{3(1-p^2)^2p^6}\,[(8-9p^2)(1-p^2)F'(p) - (8-13p^2+3p^4)E'(p)]$
V. T. 59, N. 23.

F. Alg. irrat. fract. à dén. à deux fact. $(1 \pm x^2)$. TABLE 12. Lim. 0 et 1.

1) $\int \frac{dx}{(p^2-x^2)\sqrt{1-x^2}} = 0\ [p^2<1] = \frac{\pi}{2\sqrt{p^2-1}}\ [p^2>1]$ (VIII, 198).
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2) $\int \frac{1}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2\sqrt{1+q}}$ (VIII, 303).

3) $\int \frac{x^2}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2q}\left\{1 - \frac{1}{\sqrt{1+q}}\right\}$ (VIII, 357).

4) $\int \frac{x^4}{1+qx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{4q^2}\left\{q - 2 + \frac{2}{\sqrt{1+q}}\right\}$ (VIII, 357).

5) $\int \frac{x}{1-p^2x^2} \frac{dx}{\sqrt{1-x^2}} = \frac{1}{p\sqrt{1-p^2}} \mathit{Arcsin}\, p$ (VIII, 466*).

6) $\int \frac{x\,dx}{\sqrt{(p^2+x^2)(1-x^2)}} = \mathit{Arccot}\, p$ (VIII, 197).

7) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \mathrm{F}'(p)$ (VIII, 549).

8) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{2p} l \frac{1+p}{1-p}$ V. T. 57, N. 2.

9) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{p^2}[\mathrm{F}'(p) - \mathrm{E}'(p)]$ (VIII, 549).

10) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\frac{1}{2p^2} + \frac{1+p^2}{4p^3} l \frac{1+p}{1-p}$ V. T. 57, N. 8.

11) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{3p^4}[(2+p^2)\mathrm{F}'(p) - (1+p^2)2\mathrm{E}'(p)]$ (VIII, 549).

12) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{8p^4}\left[-3(1+p^2) + \frac{3+2p+3p^4}{2p} l \frac{1+p}{1-p}\right]$ V. T. 57, N. 17.

13) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \frac{1}{15p^6}[(8+3p^2+4p^4)\mathrm{F}'(p) - (8+7p^2+8p^4)\mathrm{E}'(p)]$ V. T. 57, N. 23.

14) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2}\mathrm{E}'(p)$ V. T. 58, N. 1.

15) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2}$ V. T. 58, N. 2.

16) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^2}[\mathrm{E}'(p) - (1-p^2)\mathrm{F}'(p)]$ V. T. 58, N. 5.

17) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^2} - \frac{1}{2p^3} l \frac{1+p}{1-p}$ V. T. 58, N. 8.

18) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{(1-p^2)p^4}[(2-p^2)\mathrm{E}'(p) - 2(1-p^2)\mathrm{F}'(p)]$ V. T, 58, N. 12.

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19) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{1-p^2}\left[\frac{3-p^2}{p^4} - \frac{3+p^2}{2p^5}(1-p^2)\,l\frac{1+p}{1-p}\right]$ V. T. 58, N. 17.

20) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \frac{1}{3(1-p^2)p^6}\left[(8-3p^2-2p^4)\,E'(p)-(8+p^2)(1-p^2)\,F'(p)\right]$ V. T. 58, N. 23.

21) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\left[2(2-p^2)\,E'(p)-(1-p^2)\,F'(p)\right]$ V. T. 59, N. 1.

22) $\int \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{3-p^2}{3(1-p^2)^2}$ V. T. 59, N. 2.

23) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^2}\left[(1+p^2)\,E'(p)-(1-p^2)\,F'(p)\right]$ V. T. 59, N. 5.

24) $\int \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{2}{3(1-p^2)^2}$ V. T. 59, N. 8.

25) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^4}\left[(2-3p^2)(1-p^2)\,F'(p)-2(1-2p^2)\,E'(p)\right]$ V. T. 59, N. 12.

26) $\int \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2}\left[\frac{-3+5p^2}{p^4}+3\frac{(1-p^2)^2}{p^5}\,l\frac{1+p}{1-p}\right]$ V. T. 59, N. 17.

27) $\int \frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \frac{1}{3(1-p^2)^2p^6}\left[(8-9p^2)(1-p^2)\,F'(p)-(8-13p^2+3p^4)\,E'(p)\right]$ V. T. 59, N. 23.

28) $\int \frac{dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{1}{q}F'\left(\frac{p}{q}\right)$ (VIII, 298*).

29) $\int \frac{x^2\,dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{q}{p^2}\left\{F'\left(\frac{p}{q}\right)-E'\left(\frac{p}{q}\right)\right\}$ (VIII, 298*).

30) $\int \frac{x^4\,dx}{\sqrt{(1-x^2)(q^2-p^2x^2)}} = \frac{q}{p^4}\left\{\frac{2q^2+p^2}{3}F'\left(\frac{p}{q}\right)-\frac{p^2+q^2}{3}\,2\,E'\left(\frac{p}{q}\right)\right\}$ (VIII, 298*).

$[q > p]$ (for 28–30)

31) $\int \frac{1-x^2}{\sqrt{1+p^2x^2}^{\,3}}\,\frac{1-p^2q^2x^2}{\sqrt{1+q^2x^2}^{\,3}}\,x^2\,dx = 0$ (IV, 49).

32) $\int \frac{x^{\frac{1}{2}q}\,dx}{\{(1-x)(1-p^2x)\}^{\frac{1}{2}(q+1)}} = \frac{(1-p)^{-q}-(1+p)^{-q}}{2pq\sqrt{\pi}}\,\Gamma\left(\frac{q+2}{2}\right)\Gamma\left(\frac{1-q}{2}\right)$ (VIII, 513).

F. Alg. irrat. fract. à dén. à fact. binômes. TABLE 13. Lim. 0 et 1.

1) $\int \frac{dx}{\sqrt{(p+qx)(1-x^2)}} = \frac{2}{\sqrt{p+q}}F\left(\frac{\pi}{4},\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 329).

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2) $\int \frac{x\,dx}{\sqrt{(p+qx)(1-x^2)}} = \frac{2}{q}\sqrt{p+q}\,.\,\mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right) - \frac{2p}{q\sqrt{p+q}}\,\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)$ (VIII, 329).

3) $\int \frac{dx}{\sqrt{(p-qx)(1-x^2)}} = \frac{2}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 329).

4) $\int \frac{x\,dx}{\sqrt{(p-qx)(1-x^2)}} = \frac{2p}{q\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\} - \frac{2\sqrt{p+q}}{q}\left\{\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right) - \right.$

$\left. - \mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 329).

5) $\int \frac{dx}{\sqrt{(1-p^2x^2)(1-x^2)(p^2x^2+Tg^2\lambda)}} = \frac{1}{\sqrt{p^2+Tg^2\lambda}}\,\mathrm{F}'\left\{\frac{p}{\sqrt{Sin^2\lambda+p^2Cos^2\lambda}}\right\}$ (VIII, 312*).

6) $\int \frac{1}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = \frac{\pi}{8} + \frac{1}{4}\sqrt{2}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (IV, 48*). 7) $\int \frac{x^2}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = \frac{\pi}{8}$ (IV, 48).

8) $\int \frac{x^4}{1+x^4}\frac{dx}{\sqrt{1-x^4}} = -\frac{\pi}{8} + \frac{1}{4}\sqrt{2}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (IV, 48*).

9) $\int \left[\frac{x^{a-1}}{1-\sqrt[p]{x}} - \frac{p\,x^{pa-1}}{1-x}\right] dx = p\,l\,p$ (IV, 49).

10) $\int \left[\frac{a}{1-x} - \frac{x^{p-1}}{1-\sqrt[a]{x}}\right] dx = a\mathrm{A} + \sum_1^a \mathrm{Z}'\left(p+\frac{a-n}{a}\right)$ (IV, 49).

1) $\int \frac{dx\sqrt{x}}{1-2x\,Cos\lambda+x^2} = 2\,Cosec\lambda\,.\sum_0^\infty \frac{Sin\,n\lambda}{2n+1}$ Del Grosso, Mem. Nap. T. 1, 37.

2) $\int \frac{x^{p+\frac{1}{2}}(1-x)^{p-\frac{1}{2}}\,dx}{(a+bx-cx^2)^{p+1}} = \frac{\Gamma(p+\frac{1}{2})}{\Gamma(p+1)\,.\sqrt{a+b-c}}\;\frac{\sqrt{\pi}}{[c+\{\sqrt{a+b-c}+\sqrt{a}\}^2]^{p+\frac{1}{2}}}$

$[c+\{\sqrt{a+b-c}+\sqrt{a}\}^2>0]$ Liouville, L. Sér. 2, T. 1, 421.

3) $\int \frac{dx}{\sqrt{3-3x^2+x^4}} = \frac{1}{3\sqrt[4]{3}}\,\mathrm{F}'\left(Cos\frac{\pi}{12}\right)$ (VIII, 301).

4) $\int \frac{x^2\,dx}{\sqrt{3-3x^2+x^4}} = \frac{\sqrt[4]{3}}{3}\left\{\mathrm{F}'\left(Cos\frac{\pi}{12}\right) - 2\,\mathrm{E}'\left(Cos\frac{\pi}{12}\right)\right\}$ (VIII, 301).

5) $\int \frac{dx}{1-2rx+r^2}\sqrt{\frac{1-x}{1+x}} = \frac{\pi}{4r} + \frac{1}{r}\frac{1-r}{1+r}\,Arctg\left(\frac{1+r}{1-r}\right)$ V. T. 36, N. 11.

6) $\int \frac{dx}{1-2rx+r^2}\sqrt{\frac{1+x}{1-x}} = -\frac{\pi}{4r} - \frac{1}{r}\frac{1+r}{1-r}\,Arctg\left(\frac{1+r}{1-r}\right)$ V. T. 36, N. 12.

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7) $\int \frac{dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)}} = \mathrm{F}'(p)$ (VIII, 304).

8) $\int \frac{dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = \mathrm{F}\left(\frac{\pi}{4}, p\right)$ (VIII, 340).

9) $\int \frac{x^2\,dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = \frac{1}{1-p^2}\left\{\sqrt{\frac{2-p^2}{2}} - \mathrm{E}\left(\frac{\pi}{4}, p\right)\right\}$ (VIII, 341).

10) $\int \frac{2p^2x^2-b^2-p^2}{\sqrt{(b+p^2-p^2x^2)\{b^2-(b^2+p^2)x^2+p^2x^4\}}}\,dx = -\frac{1}{2}\pi$ $[b \geqq 1]$ (VIII, 296*).

F. Algébrique. TABLE 15. Lim. — 1 et 1.

1) $\int \frac{(1-x^2)^{r-\frac{3}{2}}\,dx}{(Cos\,\lambda \pm x\,i\,Sin\,\lambda)^{2r}} = 2^{2r-1}\frac{\Gamma(r-\frac{1}{2})\Gamma(r+\frac{1}{2})}{\Gamma(2r)}e^{\pm 2\lambda i}$ (VIII, 316).

2) $\int \frac{(1+x)^{p-1}(1-x)^{q-1}\,dx}{\{(g-h)x+(g+h+2k)\}^{p+q}} = \frac{\Gamma(p)\Gamma(q)}{2\Gamma(p+q)}\frac{1}{(g+k)^p(h+k)^q}$ (IV, 75*).

3) $\int \frac{(1-x)^p(1+x)^q+(1-x)^q(1+x)^p}{(Cos\,\lambda \pm x\,i\,Sin\,\lambda)^{p+q}}\frac{dx}{1-x^2} = 2^{p+q}\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}e^{\pm(p-q)\lambda i}$ (VIII, 316*).

4) $\int \frac{(1-x)^p(1+x)^q-(1-x)^q(1+x)^p}{(Cos\,\lambda \pm x\,i\,Sin\,\lambda)^{p+q}}\frac{dx}{1-x^2} = 0$ (VIII, 316*).

5) $\int \frac{dx}{\sqrt{q^2-2pqx+p^2}} = \frac{2}{p}$ $[p>q]$, $=\frac{2}{q}$ $[p<q]$ (VIII, 290*).

6) $\int \frac{qx-p}{\sqrt{q^2-2pqx+p^2}^{\,3}}\,dx = -\frac{2}{p^2}$ $[p>q]$, $=0$ $[p<q]$ (VIII, 290*).

7) $\int \frac{dx}{\sqrt{(1-2px+p^2)(1-2qx+q^2)}} = \frac{1}{\sqrt{pq}}\,l\,\frac{1+\sqrt{pq}}{1-\sqrt{pq}}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], = \frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{p}+\sqrt{q}}{\sqrt{p}-\sqrt{q}}$ $[q^2<1<p^2]$, $=\frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{q}+\sqrt{p}}{\sqrt{q}-\sqrt{p}}$ $[p^2<1<q^2]$, $=\frac{1}{\sqrt{pq}}\,l\,\frac{\sqrt{pq}+1}{\sqrt{pq}-1}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 291).

F. Alg. rat. fract. à dén. $(1\pm x)^a$. TABLE 16. Lim. 0 et ∞.

$p>0$

$,p<1$ 1) $\int \frac{x^{p-1}\,dx}{1+qx} = \frac{\pi}{q^p}\,Cosec\,p\pi$ (VIII, 238).

2) $\int \frac{x^{1-p}\,dx}{1+x} = -\pi\,Cosec\,p\pi$ V. T. 16, N. 1.

$2>p>1$

3) $\int \left(\frac{x^p-x^{-p}}{1-x}\right)^2 dx = 2(1-2p\pi\,Cot\,2p\pi)$ $\left[p^2<\frac{1}{4}\right]$ (VIII, 324).

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4) $\int \frac{x^p\,dx}{(1+qx)^2} = \frac{p\pi}{q^{p+1}}\, Cosec\, p\pi$ V. T. 16, N. 1. 5) $\int \frac{x^p\,dx}{(1+x)^3} = \frac{1-p}{2} p\pi\, Cosec\, p\pi$ V. T. 16, N. 7.

6) $\int \frac{dx}{(p+qx)^{a+\frac{1}{2}}} = \frac{2}{(2a-1)qp^{a-\frac{1}{2}}}$ (VIII, 290).

7) $\int \frac{x^{p-1}\,dx}{(1+x)^{p+q}} = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} = \mathrm{B}(p,\,q) =$ 8) $\int \frac{x^{q-1}\,dx}{(1+x)^{p+q}}$ (VIII, 262).

9) $\int \frac{x^{p-1}\,dx}{(q+x)^{a+1}} = \frac{(-1)^a}{1^{a/1}} \frac{(p-1)^{a/-1}}{Sin\, p\pi} \pi q^{p-a-1}$ (IV, 51).

10) $\int \frac{x^{p-1}\,dx}{(1+qx)^{p+r}} = \frac{\Gamma(p)\Gamma(r)}{q^p\,\Gamma(p+r)}$ (VIII, 631).

11) $\int \frac{x^{a+p}\,dx}{(1+x)^{2a+2}} = \frac{(-1)^a\pi}{Sin\, p\pi} \frac{p(p^2-1^2)(p^2-2^2)\dots(p^2-a^2)}{1^{2a+1/1}}$ $[p<a+1]$ (VIII, 235).

12) $\int \frac{x^a\,dx}{(1+x)^{a+p+1}} = \Delta^a\left(\frac{1}{p}\right)$ (IV, 51).

13) $\int \left[x^{q-p} - \frac{x^q}{(1+x)^p}\right] dx = \frac{q}{q-p+1} \frac{\Gamma(q)\Gamma(p-q)}{\Gamma(p)}$ (VIII, 686).

F. Alg. rat. fract. à dén. $(1\pm x^a)^b$. TABLE 17. Lim. 0 et ∞.

1) $\int \frac{dx}{q^2-x^2} = 0$ (VIII, 228).

2) $\int \frac{dx}{1+x^3} = \frac{2\pi}{9}\sqrt{3} =$ 3) $\int \frac{x\,dx}{1+x^3}$ (VIII, 292).

4) $\int \frac{dx}{q^3-x^3} = \frac{\pi}{2q^2\sqrt{3}}$ (VIII, 229).

5) $\int \frac{dx}{1+x^4} = \frac{1}{4}\pi\sqrt{2} =$ 6) $\int \frac{x^2\,dx}{1+x^4}$ (VIII, 292).

7) $\int \frac{dx}{1+x^6} = \frac{1}{3}\pi =$ 8) $\int \frac{x^4\,dx}{1+x^6}$ (VIII, 292).

9) $\int \frac{dx}{(\pm p+qi)^2+x^2} = \frac{\pi}{2(p\pm qi)}$ (VIII, 194).

10) $\int \frac{x^{q-1}\,dx}{1+x^p} = \frac{\pi}{p}\, Cosec\, \frac{q\pi}{p} = \frac{1}{p}\Gamma\left(\frac{q}{p}\right)\Gamma\left(\frac{p-q}{p}\right)$ $[p \geqq q \geqq 0]$, $=\infty$ $[q>p]$ (VIII, 224).

11) $\int \frac{x^{q-1}\,dx}{1-x^p} = \frac{\pi}{p}\, Cot\, \frac{q\pi}{p}$ $[p>q]$ (VIII, 485).

12) $\displaystyle\int \frac{1-x^q}{1-x^r}\, x^{p-1}\, dx = \frac{\pi\, Sin\frac{q\pi}{r}}{r\, Sin\frac{p\pi}{r} . Sin\left\{\frac{p+q}{r}\pi\right\}}$ (VIII, 585).

13) $\displaystyle\int \frac{dx}{(p+qx^2)^{a+1}} = \frac{1^{a/2}}{1^{a/1}}\, \frac{\pi}{2^{a+1} p^a \sqrt{pq}}$ (VIII, 235).

14) $\displaystyle\int \frac{dx}{(1+x^2)^3} = \frac{3}{16}\pi =$ 15) $\displaystyle\int \frac{x^4\, dx}{(1+x^2)^3}$ (VIII, 226).

16) $\displaystyle\int \frac{x^2\, dx}{(1+x^2)^3} = \frac{1}{16}\pi$ (VIII, 226).

17) $\displaystyle\int \frac{dx}{(q^2-x^2)^2} = 0$ V. T. 17, N. 1.

18) $\displaystyle\int \frac{x^{p+q-1}\, dx}{(1+x^q)^2} = \frac{p\pi}{q^2}\, Cosec\frac{p\pi}{q}$ $[p<q]$ V. T. 17, N. 23.

19) $\displaystyle\int \frac{x^{p-1}\, dx}{(r^2+x^2)^q} = \frac{\Gamma(\frac{1}{2}p)\,\Gamma(q-\frac{1}{2}p)}{2\,\Gamma(q)}\, r^{p-2q}$ $[p<1]$ (VIII, 541).

20) $\displaystyle\int \frac{x^{p-1}\, dx}{(1+x^q)^a} = \left(1-\frac{p}{q}\right)\left(1-\frac{p}{2q}\right)\ldots\left(1-\frac{p}{(a-1)q}\right)\frac{\pi}{q}\, Cosec\frac{p\pi}{q}$ (IV, 55).

21) $\displaystyle\int \frac{x^{2b}\, dx}{(p+qx^2)^{a+1}} = \frac{1^{b/2}\, 1^{a-b/2}}{1^{a/1}}\, \frac{\pi}{2^{a+1} q^b p^{a-b} \sqrt{pq}}$ $[a \geqq b]$ (VIII, 236).

22) $\displaystyle\int \frac{x^{g-1}\, dx}{(p+qx^c)^{h+1}} = \frac{(c-g)^{h/c}}{1^{h/1}}\, \frac{1}{(cp)^h}\, \frac{1}{p} \left(\frac{p}{q}\right)^{\frac{g}{c}} \frac{\pi}{c\, Sin\frac{g\pi}{c}}$ $[g<c]$ (VIII, 236).

23) $\displaystyle\int \frac{x^{ac+g-1}\, dx}{(p+qx^c)^{b+1}} = \frac{g^{a/c}\,(c-g)^{b-a/c}}{1^{b/1}}\, \frac{1}{c^g\, p^{b-a+1}\, q^a} \left(\frac{p}{q}\right)^{\frac{g}{c}} \frac{\pi}{c\, Sin\frac{g\pi}{c}}$ $\left[\begin{matrix} b+1>a, \\ g<c \end{matrix}\right]$ (VIII, 236).

F. Alg. rat. fract. à dén. à fact. mon. et bin. TABLE 18. Lim. 0 et ∞.

1) $\displaystyle\int \frac{dx}{(1+x)\,x^p} = \pi\, Cosec\, p\pi$ $[p<1]$ (VIII, 486*).

2) $\displaystyle\int \frac{dx}{(1-x)\,x^p} = -\pi\, Cot\, \pi p$ $[p<1]$ (VIII, 461).

3) $\displaystyle\int \frac{dx}{(1+x^3)\,x^p} = \frac{1+p}{2}\, p\pi\, Cosec\, p\pi$ V. T. 16, N. 7.

4) $\displaystyle\int \frac{x^p - a^{p-q} x^q}{x-a}\, \frac{dx}{x} = \pi a^{p-1}\, (Cot\, q\pi - Cot\, p\pi)$ $\left[\begin{matrix} p<1, \\ q<1 \end{matrix}\right]$ (VIII, 585*).

5) $\displaystyle\int \frac{(1+x)^q - 1}{(1+x)^{p+q}}\, \frac{dx}{x} = Z'(p+q) - Z'(p)$ (IV, 56).

6) $\int \frac{x^q - 1}{x^p - x^{-p}} \frac{dx}{x} = \frac{\pi}{2p} \, Tang \frac{q\pi}{2p}$ (VIII, 585).

7) $\int \frac{x^{2q-1} - (p+x)^{2q-1}}{(p+x)^q x^q} dx = \pi \, Cot\, q\pi$ (VIII, 631).

8) $\int \frac{q(1-p) + (1-p-t+tq)x}{x^p (1+x)^{2-p-t} (x+q)^{t+1}} dx = 0$ (VIII, 628).

9) $\int \frac{x^p - q^p}{x-1} \frac{x^{-p} - 1}{x-q} dx = \frac{1}{q-1} [2\pi (q^p - 1) \, Cot\, p\pi - (q^p + 1) \, l q] \; [p^2 < 1]$ (VIII, 324).

10) $\int \left[\frac{1}{x^p} - \frac{1}{(1+x)^p}\right] x^q \, dx = \frac{q}{q-p+1} \frac{\Gamma(q)\Gamma(p-q)}{\Gamma(p)}$ (VIII, 686).

11) $\int \left[\frac{1}{1+x} - \frac{1}{(1+x)^p}\right] \frac{dx}{x} = \mathrm{A} + \mathrm{Z}'(p)$ (VIII, 602).

12) $\int \left[\frac{1}{(1+x)^p} - \frac{1}{(1+x)^q}\right] \frac{dx}{x} = \mathrm{Z}'(q) - \mathrm{Z}'(p)$ V. T. 18, N. 11.

13) $\int \left[\frac{q^p x^{p-1}}{(1+qx)^p} - \frac{(1+qx)^{p-1}}{q^{p-1} x^p}\right] dx = \pi \, Cot\, p\pi$ (IV, 57).

14) $\int \left[\frac{1}{(s+px)^r} - \frac{1}{(s+qx)^r}\right] \frac{dx}{x} = \frac{1}{s^r} \, l \frac{q}{p}$ (VIII, 279).

15) $\int \left[\frac{1}{1+x^2} - \frac{1}{1+x}\right] \frac{dx}{x} = 0$ (VIII, 702).

F. Alg. rat. fract. à dén. à fact. binômes. TABLE 19. Lim. 0 et ∞.

1) $\int \frac{x^p - 1}{x-1} \frac{dx}{x+r} = \frac{\pi}{1+r} \left(\frac{r^p - Cos\, p\pi}{Sin\, p\pi} - \frac{1}{\pi} \, l r\right) [p^2 < 1]$ (VIII, 323).

2) $\int \frac{x^p - x^q}{x-1} \frac{dx}{x+r} = \frac{\pi}{1+r} \left(\frac{r^p - Cos\, p\pi}{Sin\, p\pi} - \frac{r^q - Cos\, q\pi}{Sin\, q\pi}\right) \begin{bmatrix} p^2 < 1, \\ q^2 < 1 \end{bmatrix}$ (VIII, 323).

3) $\int \frac{x^p - q^p}{x-q} \frac{x^p - 1}{x-1} dx = \frac{\pi}{q-1} \left(\frac{q^{2p} - 1}{Sin\, 2p\pi} - \frac{1}{\pi} q^p \, l q\right) [4p^2 < 1]$ (VIII, 324).

4) $\int \frac{x^p - x^{p-q}}{x-1} \frac{x^q - r^q}{x-r} dx = \frac{\pi}{r-1} \frac{Sin\, q\pi}{Sin\, p\pi} \left(\frac{r^{p+q} - 1}{Sin\{(p+q)\pi\}} + \frac{r^q - r^p}{Sin\{(p-q)\pi\}}\right) \begin{bmatrix} (p+q)^2 < 1, \\ (p-q)^2 < 1 \end{bmatrix}$, (VIII, 324).

5) $\int \frac{x^{q-\frac{1}{2}} dx}{[(x+r)(x+s)]^q} = \frac{\Gamma(q-\frac{1}{2})\sqrt{\pi}}{\Gamma(q)} \frac{1}{(\sqrt{r} + \sqrt{s})^{2q-1}}$ Cayley, L. Sér. 2, T. 2, 47.

6) $\int \frac{dx}{(1+x)^{1-t} (x+q)^{1+t}} = \frac{1}{t(q-1)}$ (VIII, 628).

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7) $\int \frac{(r-xi)^{-p}+(r+xi)^{-p}}{2} x^{2a} dx = 0$ $[p > 2a+1]$ (IV, 57).

8) $\int \frac{(r-xi)^{-p}-(r+xi)^{-p}}{2} x^{2a-1} dx = 0$ $[p > 2a]$ (IV, 58).

9) $\int \frac{(1+px)^{-r}+(1+qx)^{-r}}{2} x^{s-1} dx = (pq)^{\frac{1}{2}s} \frac{\Gamma(s)\Gamma(r-s)}{\Gamma(r)} Cos\left\{s Arccos\left(\frac{p+q}{2\sqrt{pq}}\right)\right\}$

10) $\int \frac{(1+px)^{-r}-(1+qx)^{-r}}{2} x^{s-1} dx = -(pq)^{\frac{1}{2}s} \frac{\Gamma(s)\Gamma(r-s)}{\Gamma(r)} Sin\left\{s Arccos\left(\frac{p+q}{2\sqrt{pq}}\right)\right\}$ $[s < r]$ (IV, 58).

11) $\int \frac{(r-xi)^{-p}+(r+xi)^{-p}}{2} \frac{(s-xi)^{-q}+(s+xi)^{-q}}{2} dx = \frac{\pi}{2}(r+s)^{1-p-q} \frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 679).

12) $\int \frac{(r-xi)^{-p}-(r+xi)^{-p}}{2} \frac{(s-xi)^{-q}-(s+xi)^{-q}}{2} dx = -\frac{\pi}{2}(r+s)^{1-p-q} \frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 679).

13) $\int \left[\frac{x^q}{(1+x)^{1+q}} - \frac{x^p}{(1+x)^{1+p}}\right] dx = Z'(p+1) - Z'(q+1)$ V. T. 18, N. 12.

14) $\int \frac{x^{p-1}}{q^2+x^2} \frac{dx}{r^2-x^2} = \frac{\pi}{2} \frac{q^{p-2}+r^{p-2} Cos\frac{1}{2}p\pi}{q^2+r^2} Cosec\frac{1}{2}p\pi$ (IV, 59).

15) $\int \frac{x^p}{1+x^{2q}} \frac{dx}{1+x^{3q}} = \frac{\pi}{4q}\left[Cosec\left(\frac{p+1}{2q}\pi\right) + Sec\left(\frac{p+1}{2q}\pi\right)\right] +$

$+\frac{\pi}{6q} \frac{1+4 Cos\left(\frac{p+1}{3q}2\pi\right)+4 Cos\left(\frac{p+1}{3q}2\pi-\frac{4\pi}{3}\right)}{Sin\left(\frac{p+1}{q}\pi\right)}$ (IV, 59).

16) $\int \frac{x^{p-1}}{1+x^a} \frac{dx}{1+x^b} = \frac{\pi}{2a Sin p\pi} \sum_0^{a-1} \frac{Cos\left(\frac{2n-a+1}{a}p\pi\right)+Cos\left(\frac{(2n-a+1)(p-b)}{a}\pi\right)}{1+Cos\left((2n+1)\frac{b\pi}{a}\right)} +$

$+\frac{\pi}{2b Sin p\pi} \sum_0^{b-1} \frac{Cos\left(\frac{2n-b+1}{b}p\pi\right)+Cos\left(\frac{(2n-b+1)(p-a)}{b}\pi\right)}{1+Cos\left((2n+1)\frac{a\pi}{b}\right)}$ (IV, 59).

17) $\int \left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{1-x^2} = 0$ (VIII, 278).

18) $\int \frac{(r-xi)^{-q}+(r+xi)^{-q}}{s^2+x^2} dx = \frac{\pi}{s(r+s)^q}$ (VIII, 679).

19) $\int \frac{(r-xi)^{-q}-(r+xi)^{-q}}{i(s^2+x^2)} x dx = \frac{\pi}{(r+s)^q}$ (VIII, 679).

1) $\int \frac{x^{1-p}\,dx}{r^2+(x+q)^2} = \frac{\pi}{\sqrt{q^2+r^2}^{\,p}} \frac{Sin\left\{(1-p)\,Arctg\,\frac{r}{q}\right\}}{Sin\,p\pi\,.\,Sin\left(Arctg\,\frac{r}{q}\right)}$ (VIII, 532*).

2) $\int \frac{x+q}{r^2+(x+q)^2}\,x^{p-1}\,dx = \frac{\pi}{\sqrt{q^2+r^2}^{\,1-p}}\,Cosec\,p\pi\,.\,Cos\left\{(p-1)\,Arctg\,\frac{r}{q}\right\}$ (VIII, 532).

3) $\int \frac{x^p\,dx}{q^2+2\,q\,x\,Cos\,\lambda+x^2} = \frac{\pi\,q^{p-1}}{Sin\,p\pi}\,\frac{Sin\,p\lambda}{Sin\,\lambda}\,\left[\begin{matrix}p^2<1,\\ \lambda^2<\pi^2\end{matrix}\right]$ (VII, 474*).

4) $\int \frac{dx}{\left[\left(g\,x+\frac{h}{x}\right)^2+q\right]^{p+1}} = \frac{2\,\Gamma\left(p+\frac{1}{2}\right)\sqrt{\pi}}{g\,q^{p+\frac{1}{2}}\,\Gamma(p+1)}$

5) $\int \frac{g+\frac{h}{x^2}}{\left[\left(g\,x+\frac{h}{x}\right)^2+q\right]^{p+1}}\,dx = \frac{\Gamma\left(p+\frac{1}{2}\right)\sqrt{\pi}}{q^{p+\frac{1}{2}}\,\Gamma(p+1)}$

Liouville, L. Sér. 2, T. 1, 421.

6) $\int \frac{dx}{(p^2+q^2)^2+2\,(p^2-q^2)\,x^2+x^4} = \frac{1}{4p}\,\frac{\pi}{p^2+q^2}$ (VIII, 194).

7) $\int \frac{x^2\,dx}{(p^2+q^2)^2+2\,(p^2-q^2)\,x^2+x^4} = \frac{\pi}{4p}$ (VIII, 194).

8) $\int \frac{x^{p+1}\,dx}{(q^2+2\,q\,x\,Cos\,\lambda+x^2)^2} = \frac{\pi}{2\,q^{p-2}\,Sin\,p\pi}\,\frac{p\,Sin\,\lambda\,.\,Cos\,p\lambda - Cos\,\lambda\,.\,Sin\,p\lambda}{Sin^3\,\lambda}$ V. T. 20, N. 3.

9) $\int \frac{x^{q-1}\,dx}{[(p+r-1)\,x^2+(2\,p+r)\,x+p]^q} = \frac{\Gamma\left(q-\frac{1}{2}\right)}{\left[2\,p+r+2\,\sqrt{p\,(p+r-1)}\right]^{q-\frac{1}{2}}\,\Gamma(q)}\sqrt{\frac{\pi}{p+r-1}}$

Cayley, L. Sér. 2, T. 2, 47.

10) $\int \frac{dx}{x^6+p\,x^4+q\,x^2+r} = \frac{a\,\pi}{a\,(a^2-p)\,\sqrt{r}-2\,r}$

11) $\int \frac{x^2\,dx}{x^6+p\,x^4+q\,x^2+r} = \frac{\pi\,\sqrt{r}}{a\,(a^2-p)\,\sqrt{r}-2\,r}$

12) $\int \frac{x^4\,dx}{x^6+d\,x^4+q\,x^2+r} = \frac{1}{2}\,\pi\,\sqrt{r}\,\frac{a^2-p}{a\,(a^2-p)\,\sqrt{r}-2\,r}$

où a est la plus grande racine de l'équation $(Z^2-p)^2-8\,Z\,\sqrt{r}-4\,q=0$ (VIII, 226).

13) $\int \frac{x^{p-1}\,dx}{1+x+x^2+\ldots+x^{a-1}} = \frac{\pi\,Sin\,\frac{\pi}{a}}{a\,Sin\,\frac{p\pi}{a}\,.\,Sin\left(\frac{p+1}{a}\,\pi\right)}$ $[p<a]$ (VIII, 320).

14) $\int \frac{x^{p-1}\,dx}{1-x+x^2-\ldots-x^{2a-1}} = \frac{\pi\,Sin\left(\frac{2\,p+1}{2\,a}\,\pi\right)}{2\,a\,Sin\,\frac{p\pi}{2\,a}\,.\,Sin\left(\frac{p+1}{2\,a}\,\pi\right)}$ $[p<2\,a]$ (VIII, 320).

15) $\int \frac{x^{p-1}\,dx}{1-x+x^2-\ldots+x^{2a}} = \frac{\pi\,Sin\left(\frac{2p+1}{2a+1}\,\frac{\pi}{2}\right).\,Cos\left(\frac{1}{2}\,\frac{\pi}{2a+1}\right)}{(2a+1)\,Sin\left(\frac{p\pi}{2a+1}\right).\,Sin\left(\frac{p+1}{2a+1}\,\pi\right)}$ $[p<2a+1]$ (VIII, 320).

16) $\int \frac{1}{1+2x\,Cos\,\lambda+x^2}\,\frac{dx}{x^p} = \frac{\pi\,Sin\,p\,\lambda}{Sin\,p\,\pi\,.\,Sin\,\lambda}$ $\left[\begin{matrix}p^2<1,\\ \lambda^2<\pi^2\end{matrix}\right]$ (VIII, 474).

17) $\int \frac{1}{r^2+(x+q)^2}\,\frac{dx}{x^p} = \frac{\pi}{r\sqrt{q^2+r^2}^{\,p}}\,Cosec\,p\,\pi\,.\,Sin\left(p\,Arctg\,\frac{r}{q}\right)$ (VIII, 532*).

18) $\int \frac{x+q}{r^2+(x+q)^2}\,\frac{dx}{x^p} = \frac{\pi}{\sqrt{q^2+r^2}^{\,p}}\,Cosec\,p\,\pi\,.\,Cos\left(p\,Arctg\,\frac{r}{q}\right)$ (VIII, 532*).

19) $\int \frac{1}{\left[\left(g\,x+\frac{h}{x}\right)^2+q\right]^{p+1}}\,\frac{dx}{x^2} = \frac{\Gamma\,(p+\frac{1}{2})\,\sqrt{\pi}}{2\,h\,q^{p+\frac{1}{2}}\,\Gamma\,(p+1)}$ Liouville, L. Sér. 2, T. 1, 421.

F. Alg. irrat. fract. TABLE 21. Lim. 0 et ∞.

1) $\int \frac{x^{p-\frac{1}{2}}\,dx}{(1+x)^2} = \frac{1-2p}{2}\,\pi\,Sec\,p\,\pi$ V. T. 16, N. 7.

2) $\int \frac{x^a\,dx}{(p+q\,x)^{b+\frac{1}{2}}} = \frac{1^{a/1}}{(2b-1)^{a+1/-2}}\,\frac{2^{a+1}}{q^{a+1}\,p^{b-a-\frac{1}{2}}}$ $[a<b-\frac{1}{2}]$ (VIII, 237).

3) $\int \frac{dx}{\sqrt{1+x^4}} = \mathrm{F}'\left(Sin\,\frac{\pi}{4}\right)$ (IV, 63).

4) $\int \frac{1-x}{\sqrt[4]{1-x^4}^{\,3}}\,dx = 0$ (IV, 63).

5) $\int \frac{dx}{1-x^4}\,\sqrt{1+x^4} = 0$ (VIII, 295).

6) $\int \frac{dx}{\sqrt{1+x^6}} = \frac{2}{3}\sqrt[4]{3}\,.\,\mathrm{F}'\left(Sin\,\frac{\pi}{12}\right)$ (IV, 64).

7) $\int \frac{dx}{\sqrt{1+x^8}} = Sec\,\frac{\pi}{8}\,.\,\sqrt{\frac{1}{2}}\,.\,\mathrm{F}'\left(Tg\,\frac{\pi}{8}\right)$ (IV, 64).

8) $\int \frac{dx}{\sqrt{1+x^{12}}} = \frac{1}{2\sqrt[4]{3}}\,Sec\,\frac{\pi}{12}\,.\,\mathrm{F}'\left(Sin\,\frac{\pi}{4}\right)+Tang\,\frac{\pi}{12}\,.\,\mathrm{F}'\left(\frac{\sqrt{2}-\sqrt[4]{3}}{1+\sqrt{3}}\right)$ (IV, 64).

9) $\int \frac{x^{p-1}\,dx}{\sqrt{1+x^q}} = 2^{\frac{2p}{q}}\,\mathrm{B}(q-2p,\,p)$ $[q>2p]$ (IV, 64).

10) $\int \frac{dx}{(1+x)^2\,x^{p+\frac{1}{2}}} = \frac{2p+1}{2}\,\pi\,Sec\,p\,\pi$ V. T. 16, N. 4.

11) $\int \left(\frac{x^{\frac{1}{2}p}-x^{-\frac{1}{2}p}}{x-1}\right)^2 dx = 2\,(1-p\,\pi\,Cot\,p\,\pi)$ $[p^2<1]$ (VIII, 324).

12) $\int \left[1-\frac{1+x^2}{\sqrt{1+x^4}}\right]\frac{dx}{x} = -\,l\,2$ V. T. 21, N. 27.

13) $\int \frac{dx}{(q^2+x^2)\sqrt{p^2+x^2}} = \frac{1}{q\sqrt{p^2-q^2}} \, Arctg\left(\frac{\sqrt{p^2-q^2}}{q}\right) \; [q<p], = \frac{1}{q\sqrt{q^2-p^2}} \, l\frac{q+\sqrt{q^2-p^2}}{p}$ $[q>p]$ (VIII, 200).

14) $\int \frac{dx}{(1+px^2)\sqrt[3]{1+9px^2}} = \frac{\pi}{4\sqrt{p}}$ (VIII, 294).

15) $\int \frac{\left(x-\frac{1}{x}\right)^{2q}(1+x^2)}{\left(x^2+\frac{1}{x^2}\right)^{p+\frac{1}{2}}} \frac{dx}{x^2} = 2^{q-p} \, Cos^2 q\pi \, \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

16) $\int \frac{dx}{\sqrt{(1+p^2x)(1+q^2x)(1+r^2x)}} = \frac{2}{\sqrt{p^2-r^2}} \, F\left[Arccos\frac{r}{p}, \sqrt{\frac{p^2-q^2}{p^2-r^2}}\right]$ (IV, 65).

17) $\int \frac{dx}{\sqrt{(p^2+l^2x)(q^2+m^2x)(r^2+n^2x)}} = \frac{2\pi}{m\sqrt{p^2n^2-r^2l^2}} \, F\left[Arccos\frac{rl}{pn}, \frac{n}{m}\sqrt{\frac{p^2m^2-q^2l^2}{p^2n^2-r^2l^2}}\right]$ (IV, 65).

18) $\int \frac{dx}{\sqrt{x(x+p^2)(x+q^2)(x+r^2)}} = \frac{2}{\sqrt{p^2-r^2}} \, F\left[Arccos\frac{r}{p}, \sqrt{\frac{p^2-q^2}{p^2-r^2}}\right]$ (IV, 65).

19) $\int \frac{x^{a+\frac{1}{2}}dx}{(p+qx+rx^2)^{a+1}} = \frac{1}{(q+2\sqrt{pr})^{a+\frac{3}{2}}} \frac{\Gamma(a+\frac{1}{2})}{\Gamma(a+1)}\sqrt{\frac{\pi}{r}}$

20) $\int \frac{x^{a-\frac{1}{2}}dx}{(p+qx+rx^2)^{a+1}} = \frac{1}{(q+2\sqrt{pr})^{a+\frac{1}{2}}} \frac{\Gamma(a+\frac{1}{2})}{\Gamma(a+1)}\sqrt{\frac{\pi}{r}}$

(19, 20) Boole, Phil. Trans. 1857.

21) $\int \frac{x^{p-t}\,dx}{(q+rx+sx^2)^{p+\frac{1}{2}}} = \frac{1}{\Gamma(p+\frac{1}{2})}\left(\frac{s}{q}\right)^{\frac{1}{2}t}\sqrt{\frac{\pi}{s}} \cdot \sum_0^\infty \frac{(t-n)^{2n/1}}{2^{n/2}(2\sqrt{qs})^n} \frac{\Gamma(p-n)}{(r+2\sqrt{qs})^{p-n}}$ (VIII, 434).

22) $\int \frac{x^{p+t}\,dx}{(q+rx+sx^2)^{p+\frac{1}{2}}} = \frac{1}{\Gamma(p+\frac{1}{2})}\left(\frac{q}{s}\right)^{\frac{1}{2}t}\sqrt{\frac{\pi}{s}} \cdot \sum_0^\infty \frac{(t-n+1)^{2n/1}}{2^{n/2}(2\sqrt{qs})^n} \frac{\Gamma(p-n)}{(r+2\sqrt{qs})^{p-n}}$ (VIII, 434).

23) $\int \frac{dx}{\sqrt{3+3x^2+x^4}} = \frac{1}{\sqrt[4]{3}} \, F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

24) $\int \frac{1}{\sqrt{3+3x^2+x^4}} \frac{dx}{(1+x^2)^2} = \sqrt[4]{3} \, . \, E'\left(Sin\frac{\pi}{12}\right) - \frac{1+\sqrt{3}}{2\sqrt[4]{3}} \, F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

25) $\int \frac{dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = F'(p)$ (VIII, 340).

26) $\int \frac{x^2\,dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)}} = \infty$ (VIII, 341).

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27) $\int\left[1-\frac{qx^2+p}{\sqrt{q^2x^4+2(pq-2r^2)x^2+p^2}}\right]\frac{dx}{x}=l\frac{pq-r^2}{pq}$ (VIII, 296).

28) $\int\frac{p\sqrt{2}+\sqrt{x}}{x+p\sqrt{2x}+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2\sqrt{q}\,.\,(q+p\sqrt{2q}+p^2)}$ (IV, 66).

29) $\int\frac{q+\sqrt{2x}}{q^2+q\sqrt{2x}+x}\,\frac{dx}{1+r^2x^2}=\frac{\pi}{2r}\,\frac{1}{1+q\sqrt{r}}$ (IV, 66).

30) $\int\frac{q+\sqrt{2x}}{q^2+q\sqrt{2x}+x}\,\frac{dx\sqrt{x}}{1+r^2x^2}=\frac{\pi}{\sqrt{r}}\,\frac{\sqrt{2}}{1+q\sqrt{r}}$ (IV, 66).

31) $\int\frac{x^6}{\sqrt{1+(2-4p^2)x^2+x^4}}\,\frac{dx}{(1+x^2)^3}=\frac{3}{8p^2}\{E'(p)-F'(p)\}+\frac{1}{2}F'(p)$ $[p<1]$ (VIII, 433).

32) $\int\frac{x^6\,dx\sqrt{1+(2-4p^2)x^2+x^4}}{(1+x^2)^5}=\frac{2p^2+1}{8p^2}E'(p)-\frac{1-p^2}{8p^2}F'(p)$ $[p<1]$ (VIII, 433).

F. Alg. fract. TABLE 22. Lim. — ∞ et ∞.

1) $\int\frac{dx}{x\pm q}=0$ (VIII, 232).

2) $\int\frac{x\,dx}{x^2+p^2}=0$ (VIII, 199).

3) $\int\frac{(-xi)^{p-1}}{1+x^2}\,dx=\pi$ (IV, 66).

4) $\int\frac{(-xi)^{p-1}}{1-x^2}\,dx=\pi\,Cos\,\frac{1}{2}p\pi$ (IV, 66).

5) $\int\frac{dx}{(r+xi)^p\,(s-xi)^q}=2\pi\,(r+s)^{1-p-q}\,\frac{\Gamma(p+q-1)}{\Gamma(p)\Gamma(q)}$ (VIII, 673).

6) $\int\frac{dx}{(r+xi)^p\,(s+xi)^q}=0$ (VIII, 679).

7) $\int\frac{dx}{(r-xi)^p\,(s-xi)^q}=0$ (VIII, 673).

(5–7) $\left[\begin{matrix}r>0<p<1,\\ s>0<q<1\end{matrix}\right]$.

8) $\int\left(\frac{1}{x-r-si}+\frac{1}{x-r+si}\right)dx=0$ V. T. 22, N. 9.

9) $\int\left(\frac{p-qi}{x-r-si}+\frac{p+qi}{x-r+si}\right)dx=2\pi q$ (IV, 67).

10) $\int[(r-xi)^{-a}\pm(r+xi)^{-a}]\,[(s-xi)^{-b}\pm(s+xi)^{-b}]\,dx=\pm\frac{2\pi}{(r+s)^{a+b-1}}\,\frac{\Gamma(a+b-1)}{\Gamma(a)\Gamma(b)}$ (VIII, 679).

11) $\int\frac{1}{(r-qxi)^p}\,\frac{dx}{1+x^2}=\frac{\pi}{(q+r)^p}$ (VIII, 444).

12) $\int\frac{dx}{(x-q)^2+p^2}=\frac{1}{p}\pi$ (VIII, 200).

13) $\int \frac{x-q}{(x-q)^2+p^2}\,dx = 0$ (VIII, 200).

14) $\int \frac{p+qx}{r^2+2rx\,Cos\,\lambda+x^2}\,dx = \frac{\pi}{r\,Sin\,\lambda}(p-qr\,Cos\,\lambda)$ (IV, 68).

15) $\int \frac{x}{1+(p+qx)^2}\,\frac{dx}{1+x^2} = \frac{(1-q)^2+p^2}{(1+p^2-q^2)^2+4p^2q^2}\,p\pi$ (VIII, 355).

F. Alg. fract. TABLE 23. Lim. 1 et ∞.

1) $\int \frac{(x-1)^{1-p}\,dx}{x^3} = \frac{1-p}{2}\,p\pi\,Cosec\,p\pi$ V. T. 1, N. 4. 2) $\int \frac{dx}{x(x-1)^p} = \pi\,Cosec\,p\pi$ V. T. 3, N. 4.

3) $\int \frac{dx}{x^3(x-1)^p} = \frac{1+p}{2}\,p\pi\,Cosec\,p\pi$ V. T. 3, N. 6. 4) $\int \frac{dx}{x^2-p^2} = \infty$ (VIII, 232*).

5) $\int \frac{dx}{(r-qx)(x-1)^p} = -\pi\,Cosec\,p\pi\,.\left(\frac{q}{q-r}\right)^p$ $[r<q]$ (VIII, 541*).

6) $\int \frac{1}{1+qx^2}\,\frac{dx}{x} = \frac{1}{2}\,l\,\frac{1+q}{q}$ (VIII, 367). 7) $\int (x-1)^{p-\frac{1}{2}}\frac{dx}{x} = \pi\,Sec\,p\pi$ V. T. 8, N. 12.

8) $\int (x-1)^{p-\frac{1}{2}}\frac{dx}{x^2} = \frac{1-2p}{2}\,\pi\,Sec\,p\pi$ V. T. 8, N. 11.

9) $\int \frac{\left(1+\frac{1}{x^2}\right)\left(x-\frac{1}{x}\right)^{2q}}{\left(x^2+\frac{1}{x^2}\right)^{p+\frac{1}{2}}}\,dx = 2^{q-p-1}\,\frac{\Gamma(q+\frac{1}{2})\,\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ (VIII, 293).

10) $\int \frac{dx}{x(x-1)^{p-\frac{1}{2}}} = \pi\,Sec\,p\pi$ V. T. 8, N. 12. 11) $\int \frac{dx}{x^2(x-1)^{p-\frac{1}{2}}} = \frac{2p-1}{2}\,\pi\,Sec\,p\pi$ V. T. 8, N. 11.

F. Alg. fract. TABLE 24. Lim. diverses.

1) $\int_q^p \frac{dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{1}{p}\,F'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

2) $\int_q^p \frac{x\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{1}{2}\,\pi$ (VIII, 311).

3) $\int_q^p \frac{x^2\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = p\,E'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

4) $\int_q^p \frac{x^4\,dx}{\sqrt{(x^2-q^2)(p^2-x^2)}} = 2p\frac{p^2+q^2}{3}\,E'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\} - \frac{1}{3}pq^2\,F'\left\{\frac{1}{p}\sqrt{p^2-q^2}\right\}$ (VIII, 299).

5) $\int_q^p \frac{dx}{x\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{\pi}{2pq}$ (VIII, 312).

6) $\int_q^p \frac{dx}{x^3\sqrt{(x^2-q^2)(p^2-x^2)}} = \frac{\pi}{4}\,\frac{p^2+q^2}{p^3q^3}$ (VIII, 312).

7) $\int_q^p \frac{(x-q)^{r-1}(p-x)^{s-1}}{(t+x)^{r+s}}\,dx = \frac{(p-q)^{r+s-1}}{(p+t)^r(q+t)^s}\,\frac{\Gamma(r)\Gamma(s)}{\Gamma(r+s)}$ Winckler, Sitz. Ber. Wien. B. 20, 97.

8) $\int_q^{\pm\infty} \frac{(x-q)^{p-1}\,dx}{r-x} = \pm\frac{(-1)^p\,\pi}{(r-q)^{1-p}}\,Cosec\,p\pi$ ($\pm$ selon que $q>p$ ou $q<p$) Jürgensen, Cr. B. 23, 142.

9) $\int_1^{Cosec\,\lambda} \frac{dx}{\sqrt{(x-1)(1-x^2 Sin^2\lambda)}} = \sqrt{\frac{2}{Sin\,\lambda}}\,.\,\mathrm{F}'\left(\frac{\pi-2\lambda}{4}\right)$ (VIII, 304).

10) $\int_{-\infty}^1 \frac{dx}{(r-qx)(x-1)^p} = -\pi\,Cosec\,p\pi\,.\left(\frac{q}{q-r}\right)^p$ $[r>q]$ (VIII, 541*).

F. Algébrique. — Intégr. Limites. TABLE 25. Lim. diverses.

[Lim. $k=\infty$].

1) $\int_0^1 \frac{1-x^k}{1-x}\,dx = \mathrm{A}+lk$ (VIII, 381).

2) $\int_0^1 \frac{x^{pk}-x^{qk}}{1-x}\,dx = l\frac{q}{p}$ (VIII, 381).

3) $\int_0^1 \left[\frac{kx^{k-1}}{1-x^k}-\frac{x^k}{1-x}\right]dx = \mathrm{A}$ (IV, 36).

4) $\int_0^1 \left[\frac{k}{1-x}-\frac{\sqrt[k]{x}}{1-\sqrt[k]{x}}\right]dx = k\mathrm{A}$ (IV, 49).

[Lim. $k=0$].

5) $\int_0^a \frac{kx^p\,dx}{k^2+(x+r)^2} = 0$ (VIII, 384).

6) $\int_0^a \frac{kx^p\,dx}{k^2+(x-r)^2} = \pi r^p$ $[a>r]$, $=0$ $[a<r]$ (VIII, 384).

7) $\int_0^a \frac{k\,dx}{k^2+x^2} = \frac{1}{2}\pi$ (VIII, 382).

8) $\int_{-a}^b \frac{k\,dx}{k^2+x^2} = \pi$ $[a>0]$, $=0$ $[a<0]$ (VIII, 382).

F. Expon. Forme entière. TABLE 26. Lim. 0 et ∞.

1) $\int e^{-(p+qi)x}\,dx = \frac{p-qi}{p^2+q^2}$ (VIII, 201).

2) $\int e^{-p^2x^2}\,dx = \frac{1}{2p}\sqrt{\pi}$ (VIII, 263).

3) $\int e^{p x^2 i}\, dx = \frac{1}{2} e^{\frac{1}{4}\pi i} \sqrt{\frac{\pi}{p}}$ V. T. 26, N. 10.

4) $\int e^{-x^p}\, dx = \frac{1}{p} \Gamma\left(\frac{1}{p}\right)$ V. T. 26, N. 11.

5) $\int e^{-p e^{bx}}\, dx = \frac{1}{b} Ei(-p)$ (IV, 76).

6) $\int e^{-x^{\frac{2}{1+2a}}}\, dx = \frac{1^{a+1/2}}{2^{a+1}} \sqrt{\pi}$ V. T. 26, N. 4.

7) $\int e^{-\frac{1}{x^2}}\, dx = \sqrt{\pi}$ V. T. 26, N. 10.

8) $\int e^{-\frac{1}{x^q}}\, dx = \frac{\sqrt[q]{q}}{(q-1)^{\frac{1}{q}/q}}$ (IV, 76).

9) $\int e^{-(p x^2 + q x)}\, dx = \frac{1}{2} e^{\frac{q^2}{4p}} \sqrt{\frac{\pi}{p}} - \frac{q}{2p} \sum_0^\infty \frac{1}{2n+1} \frac{1}{1^{n/2}} \left(\frac{q^2}{2p}\right)^n$ Raabe, Cr. B. 48, 178.

10) $\int e^{-p^2 x^2 - \frac{q^2}{x^2}}\, dx = \frac{1}{2p} e^{-2pq} \sqrt{\pi}$ (VIII, 427).

11) $\int e^{-\left(x - \frac{p}{x}\right)^{2b}}\, dx = \frac{1}{2b} \Gamma\left(\frac{1}{2b}\right)$ (IV, 77).

12) $\int e^{\left(\frac{x^2}{p^2} + \frac{q^2}{x^2}\right) r i}\, dx = \frac{1}{2} p e^{\frac{2qri}{p} + \frac{\pi i}{4}} \sqrt{\frac{\pi}{r}}$ (IV, 77).

13) $\int (e^{-x} - 1)^q e^{-px}\, dx = \frac{\Gamma(q+1)\Gamma(p)}{\Gamma(p+q+1)}$ (IV, 77).

14) $\int (e^{2px} + e^{-2px}) e^{-q^2 x^2}\, dx = \frac{1}{q} e^{\frac{p^2}{q^2}} \sqrt{\pi}$ (VIII, 570).

15) $\int (e^{p\sqrt{x}} - e^{-p\sqrt{x}}) e^{-r^2 x}\, dx = \frac{p}{r^3} e^{\frac{p^2}{4r^2}} \sqrt{\pi}$ (VIII, 570).

F. Expon. Forme fractionnaire. TABLE 27. Lim. 0 et ∞.

1) $\int \frac{dx}{1 + e^{px}} = \frac{1}{p} l 2$ (IV, 78).

2) $\int \frac{dx}{e^{px} + e^{-px}} = \frac{\pi}{4p}$ (VIII, 297).

3) $\int \frac{e^{px} - e^{-px}}{1 + e^{qx}}\, dx = \frac{\pi}{q} Cosec \frac{p\pi}{q} - \frac{1}{p}$ (VIII, 557*).

4) $\int \frac{e^{px} + e^{-px}}{e^{qx} + e^{-qx}}\, dx = \frac{\pi}{2q} Sec \frac{p\pi}{2q}$ $[q > p]$ (VIII, 488*).

5) $\int \frac{(e^{px} + e^{-px})(e^{qx} + e^{-qx})}{e^{rx} + e^{-rx}}\, dx = \frac{2\pi}{r} \frac{Cos \frac{p\pi}{2r} \cdot Cos \frac{q\pi}{2r}}{Cos \frac{p\pi}{r} + Cos \frac{q\pi}{r}}$ (VIII, 533*). $[p < r > q]$.

6) $\int \frac{(e^{px} - e^{-px})(e^{qx} - e^{-qx})}{e^{rx} + e^{-rx}}\, dx = \frac{2\pi}{r} \frac{Sin \frac{p\pi}{2r} \cdot Sin \frac{q\pi}{2r}}{Cos \frac{p\pi}{r} + Cos \frac{q\pi}{r}}$ (VIII, 533*). $[p < r > q]$.

7) $\int \frac{e^{-qx}\,dx}{1-pe^{-rx}} = \sum_0^\infty \frac{p^n}{q+nr}$ Poisson, P. 20, 222.

8) $\int \frac{e^{-qx}-e^{-px}}{1-e^{-x}}\,dx = Z'(p) - Z'(q)$ V. T. 4, N. 5.

9) $\int \frac{e^{px}-e^{-px}}{e^{qx}-1}\,dx = \frac{1}{p} - \frac{\pi}{q}\,Cot\frac{p\pi}{q}$ (VIII, 557*).

10) $\int \frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}}\,dx = \frac{\pi}{2q}\,Tang\frac{p\pi}{2q}$ $[q>p]$ (VIII, 488*).

11) $\int \frac{(e^{px}-e^{-px})(e^{qx}+e^{-qx})}{e^{rx}-e^{-rx}}\,dx = \frac{\pi}{r}\,\frac{Sin\frac{p\pi}{r}}{Cos\frac{p\pi}{r}+Cos\frac{q\pi}{r}}$ $[p<r]$ (VIII, 533*).

12) $\int \left[\frac{qe^{-re^{qx}}}{1-e^{-qx}} - \frac{pe^{-re^{px}}}{1-e^{-px}}\right] dx = e^{-r}\,l\frac{p}{q}$ Winckler, Sitz. Ber. Wien. B. 21, 389.

13) $\int \frac{dx}{e^{x^2}+e^{-x^2}} = \frac{1}{2}\sum_0^\infty (-1)^n \sqrt{\frac{\pi}{2n+1}}$ (VIII, 487).

14) $\int \frac{e^{px}\,dx}{(e^{2px}+1)^2} = \frac{\pi-2}{8p}$ V. T. 27, N. 2.

15) $\int \frac{e^{2px}}{(e^{px}+1)^2}\,dx = \frac{1}{2p}(1-2\,l\,2)$ V. T. 27, N. 1.

16) $\int \frac{(e^{px}-e^{-px})(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx})^2}\,dx = \frac{p\pi}{2q^2}\,Sec\frac{p\pi}{2q}$ $[q>p]$ V. T. 27, N. 4.

17) $\int \frac{dx}{(e^{px}+e^{-px})^q} = \frac{\sqrt{\pi}}{2^{2q+1}p}\,\frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422*).

18) $\int \frac{e^{2px}+e^{-2px}}{(e^x+e^{-x})^{2q}}\,dx = \frac{\Gamma(q+p)\,\Gamma(q-p)}{2\,\Gamma(2q)}$ V. T. 4, N. 17.

19) $\int \frac{e^{(q-2)px}\,dx}{(e^{px}+e^{-px})^{q+1}} = \frac{-1}{pq2^{q+1}} + \frac{\sqrt{\pi}}{2^{2q+2}p}\,\frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ V. T. 27, N. 17.

20) $\int \frac{dx}{(e^{p\sqrt{x}}+e^{-p\sqrt{x}})^2} = \frac{2}{p^2}\,l\,2$. V. T. 27, N. 1.

21) $\int \frac{e^{p\sqrt{x}}-e^{-p\sqrt{x}}}{(e^{p\sqrt{x}}+e^{-p\sqrt{x}})^2}\,dx = \frac{\pi}{2p}$ V. T. 27, N. 2.

22) $\int \frac{dx}{e^{qx}+2\,Cos\,\lambda+e^{-qx}} = \frac{\lambda}{2q}\,Cosec\,\lambda$ V. T. 6, N. 3.

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23) $\int \frac{e^{px}+e^{-px}}{e^{qx}+2\,Cos\,\lambda+e^{-qx}}\,dx=\frac{\pi}{q}\,Cosec\,\lambda\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\lambda}{q}$ V. T. 6, N. 19.

24) $\int \frac{e^{px}-2\,Cos\,\lambda+e^{-px}}{e^{qx}-2\,Cos\,\mu+e^{-qx}}\,dx=\frac{\pi}{q}\,\frac{Sin\left(p\frac{\pi-\mu}{q}\right)}{Sin\,\mu\,.\,Sin\frac{p\pi}{q}}-\frac{\pi-\mu}{q\,Sin\,\mu}\,Cos\,\lambda$ V. T. 6, N. 20.

25) $\int \frac{dx}{e^{x^2}+1+e^{-x^2}}=\frac{1}{2}\,Cosec\frac{\pi}{3}\,.\,\sum_1^\infty(-1)^{n-1}\,Sin\frac{n\pi}{3}\,.\,\sqrt{\frac{\pi}{n}}$ (VIII, 487).

26) $\int \frac{e^{qx}+Cos\,\lambda}{(e^{qx}+e^{-qx}+2\,Cos\,\lambda)^2}\,dx=\frac{1}{4q}\left[\lambda\,Cosec\,\lambda-\frac{1}{1+Cos\,\lambda}\right]$ V. T. 27, N. 22.

27) $\int \frac{(e^{px}-e^{-px})(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx}+2\,Cos\,\lambda)^2}\,dx=\frac{p\pi}{q^2}\,Cosec\,\lambda\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\lambda}{q}$. V. T. 27, N. 23.

F. Exponentielle. TABLE 28. Lim. — ∞ et ∞.

1) $\int e^{-px^2\pm qx}\,dx=e^{\frac{q^2}{4p}}\sqrt{\frac{\pi}{p}}$ (VIII, 429*). 2) $\int e^{(px^2+qx)i}\,dx=(1+i)\,e^{-\frac{q^2 i}{4p}}\sqrt{\frac{\pi}{2p}}$ (IV, 81).

3) $\int e^{-(px^2+qx)i}\,dx=(1-i)\,e^{\frac{q^2 i}{4p}}\sqrt{\frac{\pi}{2p}}$ (IV, 81).

4) $\int e^{\left(px^2+\frac{q}{x^2}\right)i}\,dx=(1+i)\,e^{2i\sqrt{pq}}\sqrt{\frac{\pi}{2p}}$ (IV, 82).

5) $\int e^{-\left(px^2+\frac{q}{x^2}\right)i}\,dx=(1-i)\,e^{-2i\sqrt{pq}}\sqrt{\frac{\pi}{2p}}$ (IV, 82).

6) $\int e^{-\left(x-\frac{q}{x}\right)^{2a}}\,dx=\frac{1}{a}\,\Gamma\left(\frac{1}{2a}\right)$ Boole, C. & D. Math. Journ. V. 4, 14.

7) $\int \frac{e^{-px}\,dx}{1+e^{-qx}}=\frac{\pi}{q}\,Cosec\frac{p\pi}{q}$ V. T. 17, N. 10.

8) $\int \frac{(1+e^{-x})^q-1}{(1+e^{-x})^{p+q}}\,dx=Z'(p+q)-Z'(p)$ V. T. 18, N. 5.

9) $\int \left[e^{px}-\frac{1}{(1+e^{-x})^p}\right]e^{-(q+1)x}\,dx=\frac{q}{q-p+1}\,\frac{\Gamma(q)\,\Gamma(p-q)}{\Gamma(p)}$ V. T. 18, N. 10.

10) $\int \left[\frac{1}{1+e^{-x}}-\frac{1}{(1+e^{-x})^p}\right]dx=A+Z'(p)$ V. T. 18, N. 11.

11) $\int \left[\frac{1}{(1+e^{-x})^q}-\frac{1}{(1+e^{-x})^p}\right]dx=Z'(p)-Z'(q)$ V. T. 18, N. 12.

1) $\int_0^1 x^{-px}\,dx = \sum_1^\infty \frac{p^{n-1}}{n^n}$ (IV, 83).

2) $\int_0^1 e^{-px^2}\,dx = \sqrt{\left[\frac{e^{-p}}{p}\sum_1^\infty \frac{p^n}{1^{n/1}}\sum_1^{n-1}\frac{(-1)^m}{2m+1}\right]}$ Raabe, Cr. B. 48, 137.

3) $\int_0^1 e^{q\sqrt{x}}\,dx = \frac{2}{q}\left(e^q - \frac{1}{q}e^q + \frac{1}{q}\right)$ V. T. 80, N. 1.

4) $\int_1^\infty e^{-qx-x^2}\,dx = \frac{e^{-q-1}}{q+2}\sum_0^\infty (-1)^n \frac{2^n\, 1^{n/2}}{(q+2)^{2n}}$ De Morgan, Int. Calc.

5) $\int_0^{2\pi} \frac{e^{-axi}\,dx}{1-pe^{xi}} = 2\pi p^a$ (VIII, 483).

6) $\int_0^{2\pi} \frac{pe^{xi}\,dx}{pe^{xi} \pm qe^{ri}} = 0\ [p<q],\ = 2\pi\ [p>q]$ (VIII, 359).

7) $\int_{-\pi}^{\pi} (pe^{xi})^a\,dx = 0$ V. T. 29, N. 8.

8) $\int_{-\pi}^{\pi} (q+pe^{xi})^a\,dx = 2\pi q^a$ (IV, 84).

9) $\int_{-\pi}^{\pi} (pe^{xi})^q\,dx = \frac{2}{q}p^q\, Sin\, q\pi$ (IV, 84).

10) $\int_{-\pi}^{\pi} e^{-axi}\, e^{pe^{xi}}\,dx = \frac{2\pi}{1^{a/1}}\, p^a$ (IV, 84).

11) $\int_{-\pi}^{\pi} \frac{dx}{(qe^{xi})^a} = 0$ V. T. 29, N. 12.

12) $\int_{-\pi}^{\pi} \frac{dx}{(qe^{ri}+pe^{xi})^a} = \frac{p\pi}{(qe^{ri})^a}\ [p<q],\ = 0\ [p>q]$ (VIII, 359).

13) $\int_{-\pi}^{\pi} \frac{(e^{xi})^{a+1}\,dx}{\sqrt{1-2e^{xi}\, Cos\,\lambda + e^{2xi}}} = 0$ (IV, 84).

1) $\int l(q+px)\,dx = \frac{q+p}{p}\, l(q+p) - \frac{q}{p}\, lq - 1$ (VIII, 204).

2) $\int \left(l\frac{1}{x}\right)^p dx = 1^{p/1} = \Gamma(p+1)\ [-1<p<\infty]$ (VIII, 554).

3) $\int \left(l\frac{1}{x}\right)^{\frac{2a-1}{2}} dx = \frac{1^{a/1}}{2^a}\sqrt{\pi}$ V. T. 81, N. 6.

4) $\int llx\,dx = -A$ V. T. 353, N. 1.

5) $\int l(p+lx)\,dx = lp - e^{-p}\, Ei(p)$ V. T. 107, N. 22.

6) $\int l(p-lx)\,dx = lp - e^{p}\, Ei(-p)$ V. T. 107, N. 23.

7) $\int lx \,.\, l(1-x)\,dx = 2 - \frac{1}{6}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

8) $\int lx \,.\, l(1+x)\,dx = 2 - \frac{1}{12}\pi^2 - 2\,l2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

9) $\int lx \,.\, l(1-x^2)\,dx = 4 - \frac{1}{4}\pi^2 - 2\,l2$ V. T. 30, N. 7 et 8.

10) $\int \left(l\frac{1}{x}\right)^{p-1} ll\frac{1}{x}\,dx = Z'(p) \,.\, \Gamma(p)$ (VIII, 554).

F. Logar. Forme rat. fract. TABLE 31. Lim. 0 et 1.

1) $\int \frac{dx}{\left(l\frac{1}{x}\right)^p} = \frac{\pi}{\Gamma(p)}\, Cosec\, p\pi$ V. T. 30, N. 2.

2) $\int \frac{dx}{llx} = 0$ (IV, 85).

3) $\int l\frac{1-px}{1-p}\,\frac{dx}{lx} = -\sum_1^\infty \frac{p^n}{n}\, l(1+n)$ $[p<1]$ (VIII, 278).

4) $\int \frac{dx}{q+lx} = e^{-q}\, Ei(q)$ V. T. 91, N. 4.

5) $\int \frac{dx}{q-lx} = -e^q\, Ei(-q)$ V. T. 91, N. 1.

6) $\int \frac{dx}{q^2+(lx)^2} = \frac{1}{q}\left[Ci(q)\,.\,Sin\,q - Si(q)\,.\,Cos\,q + \frac{1}{2}\pi\, Cos\,q\right]$ V. T. 91, N. 7.

7) $\int \frac{lx\,dx}{q^2+(lx)^2} = Ci(q).Cos\,q + Si(q).Sin\,q - \frac{1}{2}\pi\, Sin\,q$ V. T. 91, N. 8.

8) $\int \frac{dx}{q^2-(lx)^2} = \frac{1}{2q}\left[e^{-q}\, Ei(q) - e^q\, Ei(-q)\right]$ V. T. 31, N. 4, 5.

9) $\int \frac{lx\,dx}{q^2-(lx)^2} = -\frac{1}{2}\left[e^{-q}\, Ei(q) + e^q\, Ei(-q)\right]$ V. T. 31, N. 4, 5.

10) $\int \frac{dx}{q^4-(lx)^4} = \frac{1}{4q^3}\left[e^q\, Ei(-q) - e^{-q}\, Ei(q) - 2\, Ci(q)\,.\,Sin\,q + 2\, Si(q)\,.\,Cos\,q - \pi\, Cos\,q\right]$
V. T. 91, N. 18.

11) $\int \frac{lx\,dx}{q^4-(lx)^4} = \frac{1}{4q^2}\left[e^q\, Ei(-q) + e^{-q}\, Ei(q) - 2\, Ci(q)\,.\,Cos\,q - 2\, Si(q)\,.\,Sin\,q + \pi\, Sin\,q\right]$
V. T. 91, N. 19.

12) $\int \frac{(lx)^2\,dx}{q^4-(lx)^4} = \frac{1}{4q}\left[e^q\, Ei(-q) - e^{-q}\, Ei(q) + 2\, Ci(q)\,.\,Sin\,q - 2\, Si(q)\,.\,Cos\,q + \pi\, Cos\,q\right]$
V. T. 91, N. 20.

13) $\int \frac{(lx)^3\,dx}{q^4-(lx)^4} = \frac{1}{4}\left[e^{-q}\, Ei(q) + e^q\, Ei(-q) + 2\, Ci(q)\,.\,Cos\,q + 2\, Si(q)\,.\,Sin\,q - \pi\, Sin\,q\right]$
V. T. 91, N. 21.

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14) $\int \frac{dx}{(q+lx)^2} = -\frac{1}{q} + e^{-q}\, Ei(q)$ V. T. 31, N. 4.

15) $\int \frac{lx\,dx}{(q+lx)^2} = 1 + (1-q)e^{-q}\, Ei(q)$ V. T. 125, N. 12.

16) $\int \frac{dx}{(q-lx)^2} = \frac{1}{q} + e^{q}\, Ei(-q)$ V. T. 31, N. 5.

17) $\int \frac{lx\,dx}{(q-lx)^2} = 1 + (q+1)e^{q}\, Ei(-q)$ V. T. 125, N. 14.

18) $\int \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q^3}[Ci(q)\,.\,Sin\,q - Si(q)\,.\,Cos\,q + \frac{1}{2}\pi\,Cos\,q] + \frac{1}{2q^2}[Ci(q)\,.\,Cos\,q +$

$+ Si(q)\,.\,Sin\,q - \frac{1}{2}\pi\,Sin\,q]$ V. T. 92, N. 6.

19) $\int \frac{lx\,dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q}[Ci(q)\,.\,Sin\,q - Si(q)\,.\,Cos\,q + \frac{1}{2}\pi\,Cos\,q] - \frac{1}{2q^2}$ V. T. 92, N. 7.

20) $\int \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}[(q-1)e^{q}\, Ei(-q) + (1+q)e^{-q}\, Ei(q)]$ V. T. 92, N. 8.

21) $\int \frac{lx\,dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^2}[-1 + q\{e^{q}\, Ei(-q) - e^{-q}\, Ei(q)\}]$ V. T. 92, N. 9.

22) $\int \frac{dx}{\{q+lx\}^a} = \frac{1}{1^{a-1/1}}e^{-q}\, Ei(q) - \frac{1}{1^{a-1/1}}\sum_1^{a-1} 1^{a-n-1/1}\, q^{n-a}$ V. T. 92, N. 5.

23) $\int \frac{dx}{\{q-lx\}^a} = \frac{(-1)^a}{1^{a-1/1}}e^{q}\, Ei(-q) + \frac{(-1)^{a-1}}{1^{a-1/1}}\sum_1^{a-1} 1^{a-n-1/1}(-q)^{n-a}$ V. T. 92, N. 2.

1) $\int dx\,\sqrt{l\frac{1}{x}} = \frac{1}{2}\sqrt{\pi}$ (VIII, 542).

2) $\int dx\, l\,l\left(\sqrt[q]{\frac{1}{x}}\right) = -A - lq$ V. T. 256, N. 2.

3) $\int \frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi}$ (VIII, 542).

4) $\int \frac{dx}{\sqrt{l\frac{1}{x}}}\, l\,l\frac{1}{x} = -(A + 2\,l2)\sqrt{\pi}$ V. T. 256, N. 8.

5) $\int \frac{dx}{\sqrt{l\left(\sqrt[q]{\frac{1}{x}}\right)}}\, l\,l\left(\sqrt[q]{\frac{1}{x}}\right) = -(A + lq + 2\,l2)\sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

6) $\int l(1-\sqrt{x})\,dx = -\frac{3}{2}$ V. T. 106, N. 6.

7) $\int l(1+\sqrt[q]{x})\,dx = l2 + \sum_1^\infty \frac{(-1)^n}{q+n}$ V. T. 106, N. 4.

F. Logarithmique. TABLE 33. Lim. diverses.

1) $\int_0^\infty lx.l\frac{p^2+x^2}{q^2+x^2}\,dx = \pi(q-p) + \pi l\frac{p^p}{q^q}$ (VIII, 608).

2) $\int_0^\infty lx.l\left(1+\frac{q^2}{x^2}\right)dx = \pi q(lq-1)$ (VIII, 608).

3) $\int_0^\infty l(1+p^2x^2).l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[\frac{1+pq}{p}l(1+pq)-q\right]$ (VIII, 608).

4) $\int_0^\infty l(p^2+x^2).l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\,[(p+q)\,l(p+q)-p\,lp-q]$ (VIII, 608).

5) $\int_0^\infty l\left(1+\frac{p^2}{x^2}\right).l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\,[(p+q)\,l(p+q)-p\,lp-q\,lq]$ (VIII, 608).

6) $\int_0^\infty \left\{l\left(1+\frac{p^2}{x^2}\right)\right\}^2 dx = 4p\pi\,l2$ (VIII, 608).

7) $\int_0^\infty l\left(p^2+\frac{1}{x^2}\right).l\left(1+\frac{q^2}{x^2}\right)dx = 2\pi\left[\frac{1+pq}{p}l(1+pq)-q\,lq\right]$ (VIII, 608).

8) $\int_0^p \frac{dx}{lx} = li(p) = Ei(lp)$ (IV, 87).

9) $\int_e^\infty \frac{dx}{l\frac{1}{x}} = -\infty$ (IV, 87).

10) $\int_1^e \frac{dx\,lx}{(1+lx)^2} = \frac{1}{2}e-1$ V. T. 80, N. 6.

F. Circ. Dir. rat. ent. TABLE 34. Lim. 0 et $\frac{\pi}{4}$.

1) $\int Tang^p x\,dx = \sum_0^\infty \frac{(-1)^n}{p+2n+1}$ (VIII, 577) $= \frac{1}{4}\left\{Z'\left(\frac{p+3}{4}\right)-Z'\left(\frac{p+1}{4}\right)\right\}$ V. T. 2, N. 7.

2) $\int Tang^{2a} x\,dx = (-1)^a\frac{\pi}{4} + \sum_0^{a-1}\frac{(-1)^n}{2a-2n-1}$ (VIII, 241).

3) $\int Tang^{2a+1} x\,dx = (-1)^a\frac{1}{2}l2 + \sum_0^{a-1}\frac{(-1)^n}{2a-2n}$ (VIII, 241).

4) $\int Tang^p x . Sin^2 x\, dx = \frac{1+p}{8}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right] - \frac{1}{4}$ V. T. 34, N. 1, 5.

5) $\int Tang^p x . Cos^2 x\, dx = \frac{1-p}{8}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right] + \frac{1}{4}$ V. T. 3, N. 11.

6) $\int Tang^p x . Cos\, 2x\, dx = \frac{1}{2} - \frac{p}{4}\left[Z'\left(\frac{p+3}{4}\right) - Z'\left(\frac{p+1}{4}\right)\right]$ V. T. 34, N. 1, 5.

7) $\int Cos^{p-1} 2x . Tg\, x\, dx = \frac{1}{4}\left[Z'\left(\frac{p+1}{2}\right) - Z'\left(\frac{p}{2}\right)\right]$ V. T. 2, N. 1.

8) $\int [Sin^a 2x - 1]\, Tg\left(\frac{\pi}{4} + x\right) dx = -\frac{1}{2} \overset{a}{\underset{1}{\Sigma}} \frac{1}{n}$ V. T. 2, N. 2.

9) $\int [Sin^q 2x - Sin^p 2x]\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}[Z'(p+1) - Z'(q+1)]$ $\begin{bmatrix} p^2 < 1, \\ q^2 < 1 \end{bmatrix}$ V. T. 2, N. 4.

10) $\int [Sin^p 2x - Sin^{1-p} 2x]\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 4.

F. Circ. Dir. rat. fract. à dén. mon. TABLE 35. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Cos^q 2x}{Cos^{2(q+1)} x} dx = 2^{2q} \frac{\{\Gamma(q+1)\}^2}{\Gamma(2q+2)}$ V. T. 1, N. 1.

2) $\int \frac{Cos^q 2x . Sin^{2a-1} x\, dx}{Cos^{2a+2q+1} x} = \frac{1^{a-1/1}}{2(q+1)^{a/1}}$ V. T. 1, N. 11.

3) $\int \frac{Cos^q 2x . Sin^{2a} x\, dx}{Cos^{2a+2q+2} x} = \frac{2^{a/2}}{(2q+1)^{a+1/2}}$ V. T. 1, N. 12.

4) $\int \frac{Sin^{2p-2} x\, dx}{Cos^p 2x} = \frac{\Gamma(2p-1)\Gamma(1-p)}{2^{2p-1}\Gamma(p)}$ V. T. 3, N. 12.

5) $\int \frac{1 - Tang\, x}{Cos\, 2x} Sin^2 x\, dx = \frac{3}{4} l2 - \frac{\pi}{8}$ V. T. 2, N. 11.

6) $\int \frac{1 - Tang^3 x}{Cos\, 2x} Cos^2 x\, dx = \frac{3}{4} l2 + \frac{\pi}{8}$ V. T. 2, N. 10.

7) $\int [Cos^{p-1} 2x - Sec^p 2x]\, Cot\, x\, dx = \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 4.

8) $\int [Cos^{p-1} 2x + Sec^p 2x]\, Tg\, x\, dx = \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 1.

9) $\int [Tang^p x + Cot^p x]\, dx = \frac{1}{2}\pi\, Sec \frac{1}{2} p\pi \quad [p^2 < 1]$ V. T. 4, N. 7.

10) $\int \frac{Tang^{p-1} x - Cot^{p-1} x}{Cos\, 2x}\, dx = \frac{1}{2}\pi\, Cot \frac{1}{2} p\pi$ V. T. 4, N. 4.

11) $\int \frac{Cos^a\, 2x - 1}{Tang\, x}\, dx = -\frac{1}{2}\sum_1^a \frac{1}{n}$ V. T. 2, N. 2.

12) $\int \frac{Cos^q\, 2x - Cos^p\, 2x}{Tang\, x}\, dx = \frac{1}{2}\{Z'(p+1) - Z'(q+1)\}$ V. T. 2, N. 4.

13) $\int \frac{1 - Sec^p\, 2x}{Tang\, x}\, dx = \frac{1}{2}\{A + Z'(1-p)\} \quad [p < 1]$ V. T. 4, N. 5.

14) $\int \frac{Cos^p\, 2x - Sec^p\, 2x}{Tang\, x}\, dx = -\frac{1}{2p} + \frac{\pi}{2} Cot\, p\pi$ V. T. 4, N. 3.

15) $\int [Tg^p x - Cot^p x]\, Tg\, x\, dx = \frac{1}{p} - \frac{\pi}{2} Cosec \frac{1}{2} p\pi$ V. T. 4, N. 8.

16) $\int (Tg^p x + Cot^p x)(Tg^q x + Cot^q x)\, dx = 2\pi \frac{Cos \frac{1}{2} p\pi \,.\, Cos \frac{1}{2} q\pi}{Cos\, p\pi + Cos\, q\pi}$ V. T. 4, N. 9.

17) $\int (Tg^p x - Cot^p x)(Tg^q x - Cot^q x)\, dx = 2\pi \frac{Sin \frac{1}{2} p\pi \,.\, Sin \frac{1}{2} q\pi}{Cos\, p\pi + Cos\, q\pi}$ V. T. 4, N. 10.

(16, 17) $\left[\begin{matrix} p < 1, \\ q < 1 \end{matrix}\right]$.

18) $\int (Sin^{p-1}\, 2x + Cosec^p\, 2x)\, Cot\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 1.

19) $\int (Sin^p\, 2x - Cosec^p\, 2x)\, Cot\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2p} - \frac{\pi}{2} Cosec\, p\pi$ V. T. 4, N. 2.

20) $\int \frac{Sin^p\, 2x - 1}{Sin^p\, 2x}\, Tg\left(\frac{\pi}{4} + x\right) dx = \frac{1}{2}\{A + Z'(1-p)\} \quad [p < 1]$ V. T. 4, N. 5.

21) $\int \frac{Sin^{2p}\, 2x - 1}{Sin^p\, 2x}\, Tg\left(\frac{\pi}{4} + x\right) dx = -\frac{1}{2p} + \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 3.

22) $\int (Cos^p\, 2x - Sec^p\, 2x)\; Tg\, x\, dx = \frac{1}{2p} - \frac{1}{2}\pi\, Cosec\, p\pi$ V. T. 4, N. 2.

23) $\int \frac{Tg^p x - Cot^p x}{Cos\, 2x}\, Tg\, x\, dx = -\frac{1}{p} + \frac{1}{2}\pi\, Cot\, p\pi$ V. T. 4, N. 12.

24) $\int \frac{(Cos\, x - Sin\, x)^{1-p}\, Sin^p x}{Cos^3 x}\, dx = \frac{1-p}{2} p\pi\, Cosec\, p\pi$ V. T. 23, N. 1.

25) $\int \frac{(Tg^p x - Cot^p x)(Tg^q x + Cot^q x)}{Cos\, 2x}\, dx = \frac{-\pi\, Sin\, p\pi}{Cos\, p\pi + Cos\, q\pi} \quad \left[\begin{matrix} p < 1, \\ q < 1 \end{matrix}\right]$ V. T. 4, N. 13.

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26) $\int \frac{Cos^p 2x - Cos^{1-p} 2x}{Tang\, x} \frac{dx}{Cos\, 2x} = \frac{1}{2} \pi\, Cot\, p\pi$ V. T. 4, N. 4.

27) $\int \frac{(Cos\, x - Sin\, x)^p}{Sin^p x \,.\, Sin\, 2x} dx = -\frac{1}{2} \pi\, Cosec\, p\pi$ V. T. 3, N. 5.

28) $\int Sin\,(p\, Tg\, x) \frac{dx}{Sin\, 2x} = \frac{1}{2} Si(p)$ V. T. 149, N. 5.

29) $\int Cos\,(p\, Cot\, x) \frac{dx}{Sin\; 2\; x} = -\frac{1}{2} Ci(p)$ V. T. 226, N. 1.

30) $\int \frac{Cos\,(q\, Tg\, x) - Cos\,(q\, Cot\, x)\, dx}{Cos\, 2x} = \frac{1}{2} \pi\, Sin\, q$ V. T. 149, N. 11.

31) $\int [Tang^{p\,i}\, x + Cot^{p\,i}\, x]\, Sin\, 2x\, dx = \frac{1}{2} \frac{p\pi}{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}$ V. T. 3, N. 13.

F. Circ. Dir. rat. fract. à dén. polyn. TABLE 36. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tang\, x\, dx}{1 + Cos\,\lambda \,.\, Sin\, 2x} = -\frac{1}{2} \lambda\, Cot\, \lambda + l\left(2\, Cos\, \frac{1}{2}\lambda\right)$ V. T. 6, N. 4.

2) $\int \frac{Tang\, x\, dx}{1 - p\, Sin\, 2x} = \frac{1}{2} l\{2(1-p)\} + \frac{p}{\sqrt{1-p^2}} Arctg\left(\sqrt{\frac{1+p}{1-p}}\right)\ [p^2 < 1], = \frac{1}{2} l\{2(p-1)\} -$

$- \frac{p}{2\sqrt{p^2-1}} l\{p + \sqrt{p^2-1}\}\ [p^2 > 1]$ V. T. 6, N. 2.

3) $\int \frac{Tang^p\, x\, dx}{1 + Sin\, x \,.\, Cos\, x} = \frac{1}{3}\left\{Z'\left(\frac{p+2}{3}\right) - Z'\left(\frac{p+1}{3}\right)\right\}$ V. T. 6, N. 7.

4) $\int \frac{Tang^p\, x\, dx}{1 - Sin\, x \,.\, Cos\, x} = \frac{1}{6}\left\{Z'\left(\frac{p+5}{6}\right) - Z'\left(\frac{p+2}{6}\right) + Z'\left(\frac{p+4}{6}\right) - Z'\left(\frac{p+1}{6}\right)\right\}$ V. T. 36, N. 5.

5) $\int \frac{Tang^c\, x\, dx}{1 + Cos\, \frac{a\pi}{b} \,.\, Sin\; 2\; x} = \frac{1}{2b} Cosec\, \frac{a\pi}{b} \,.\, \overset{b-1}{\underset{0}{\Sigma}} (-1)^{n-1}\, Sin\, \frac{n\, a\, \pi}{b} \,.\left\{Z'\left(\frac{b+c+n}{2b}\right) - Z'\left(\frac{c+n}{2b}\right)\right\}$

$[a + b \text{ impair}], = \frac{1}{b} Cosec\, \frac{a\pi}{b} \,.\, \overset{\frac{1}{2}(b-1)}{\underset{0}{\Sigma}} (-1)^{n-1}\, Sin\, \frac{na\pi}{b} \,.\left\{Z'\left(\frac{b+c-n}{b}\right) - Z'\left(\frac{c+n}{b}\right)\right\} \begin{bmatrix} a+b \\ \text{pair} \end{bmatrix}$

V. T. 6, N. 7.

6) $\int \frac{Tg^p\, x + Cot^p\, x}{1 + Cos\,\lambda \,.\, Sin\, 2x} dx = \pi\, Cosec\, \lambda \,.\, Cosec\, p\pi \,.\, Sin\, p\lambda$ V. T. 6, N. 8.

7) $\int \frac{1 - Tg\, x}{1 - Cos\,\lambda \,.\, Sin\, 2x} dx = Cosec\, \lambda \,.\, \overset{\infty}{\underset{1}{\Sigma}} \frac{Sin\, n\lambda}{n(n+1)}$ V. T. 6, N. 5.

8) $\int \frac{Sin\,\lambda - Tang^a x\,.\,Sin\,\{(a+1)\lambda\} + Tang^{a+1} x\,.\,Sin\,a\lambda}{1 - Cos\,\lambda\,.\,Sin\,2x}\,Tang\,x\,dx = \sum_1^a \frac{Sin\,n\lambda}{n+1}$ V. T. 6, N. 12.

9) $\int \frac{1 - Tang\,x\,.\,Cos\,\lambda - Tg^{a+1} x\,.\,Cos\{(a+1)\lambda\} + Tang^{a+2} x\,.\,Cos\,a\lambda}{1 - Cos\,\lambda\,.\,Sin\,2x}\,dx = \sum_0^a \frac{Cos\,n\lambda}{n+1}$ V. T. 6, N. 11.

10) $\int \frac{Tang^p x\,dx}{1 - Sin^2 x\,.\,Cos^2 x} = \frac{1}{6}\left\{-Z'\left(\frac{p+1}{6}\right) - Z'\left(\frac{p+2}{6}\right) + Z'\left(\frac{p+4}{6}\right) + Z'\left(\frac{p+5}{6}\right) + 2Z'\left(\frac{p+2}{3}\right) - \right.$

$\left. - 2Z'\left(\frac{p+1}{3}\right)\right\}$ V. T. 36, N. 3, 4.

11) $\int \frac{Sin^2 x\,dx}{1 - 2r\,Cos\,2x + r^2} = \frac{\pi}{16r} + \frac{1}{4r}\,\frac{1-r}{1+r}\,Arctg\,\frac{1+r}{1-r}$ (VIII, 539).

12) $\int \frac{Cos^2 x\,dx}{1 - 2r\,Cos\,2x + r^2} = -\frac{\pi}{16r} - \frac{1}{4r}\,\frac{1+r}{1-r}\,Arctg\,\frac{1+r}{1-r}$ (VIII, 539).

F. Circ. Dir. rat. fract. à dén. composé. TABLE 37. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Sin^{p-1} 2x\,dx}{(Cos\,x + Sin\,x)^{2p}} = \frac{1}{2^{p+1}}\,\frac{\Gamma(p)\sqrt{\pi}}{\Gamma(p+\frac{1}{2})}$ V. T. 3, N. 2.

2) $\int \frac{Tg^c x\,.\,Cos^2 x\,dx}{\left(1 + Sin\,2x\,.\,Cos\frac{a\pi}{b}\right)^2} = \frac{1}{4b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2} + \sum_1^{b-1}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c+n}{2b}\right) - \right.\right.\right.$

$\left.\left.\left. - Z'\left(\frac{c+n}{2b}\right)\right\} - c\,Cos\,\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c+n-1}{2b}\right) - Z'\left(\frac{c+n-1}{2b}\right)\right\}\right]\right\}\ \begin{bmatrix}a+b\\ \text{imp.}\end{bmatrix}$

$= \frac{1}{2b\,Sin^3\frac{a\pi}{b}}\left\{\frac{1}{2} + \sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\frac{na\pi}{b}\,.\left[(1-c)\left\{Z'\left(\frac{b+c-n}{b}\right) - \right.\right.\right.$

$\left.\left.\left. - Z'\left(\frac{c+n}{b}\right)\right\} - c\,Cos\frac{a\pi}{b}\,.\left\{Z'\left(\frac{b+c-n-1}{b}\right) - Z'\left(\frac{c+n-1}{b}\right)\right\}\right]\right\}\ \begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}$

V. T. 6, N. 17.

3) $\int \frac{Tg^{p-1} x + Cot^p x}{Sin\,x + Cos\,x}\,\frac{dx}{Cos\,x} = \pi\,Cosec\,p\pi$ V. T. 4, N. 1.

4) $\int \frac{Tg^p x - Cot^p x}{Sin\,x + Cos\,x}\,\frac{dx}{Cos\,x} = \frac{1}{p} - \pi\,Cosec\,p\pi$ V. T. 4, N. 2.

5) $\int \frac{Tg^q x - Tg^p x}{Cos\,x - Sin\,x}\,\frac{dx}{Cos\,x} = Z'(1+p) - Z'(1+q)$ V. T. 2, N. 4.

6) $\int \frac{Cot^q x - Cot^p x}{Cos\,x - Sin\,x}\,\frac{dx}{Cos\,x} = Z'(p) - Z'(q)$ V. T. 4, N. 5.
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7) $\int \frac{Tg^{p-1} x - Cot^p x}{Cos x - Sin x} \frac{dx}{Cos x} = \pi \, Cot \, p\pi$ V. T. 4, N. 4.

8) $\int \frac{Tg^p x - Cot^p x}{Cos x - Sin x} \frac{dx}{Cos x} = \pi \, Cot \, p\pi - \frac{1}{p}$ V. T. 4, N. 3.

9) $\int \frac{Cot^p x - 1}{Cos x - Sin x} \frac{dx}{Sin x} = -A - Z'(1-p)$ V. T. 4, N. 5.

10) $\int \frac{Tg^q x - Tg^p x}{Cos x - Sin x} \frac{dx}{Sin x} = Z'(p) - Z'(q)$ V. T. 4, N. 5.

11) $\int \frac{Tg^p x - Tg^{1-p} x}{Cos x - Sin x} \frac{dx}{Sin x} = \pi \, Cot \, p\pi$ V. T. 4, N. 4.

12) $\int \frac{1}{Tg^p x + Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{8p}$ V. T. 4, N. 14.

13) $\int \frac{Tg^q x + Cot^q x}{Tg^p x + Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{4p} Sec \frac{q\pi}{2p}$ V. T. 4, N. 14.

14) $\int \frac{Tg^q x - Cot^q x}{Tg^p x - Cot^p x} \frac{dx}{Sin 2x} = \frac{\pi}{4p} Tang \frac{q\pi}{2p}$ V. T. 4, N. 15.

15) $\int \frac{Cos 2x}{1 + Sin 2x . Cos \lambda} \frac{dx}{Cos^2 x} = Cos \lambda . l \{2(1 + Cos \lambda)\} - 1 + \lambda Sin \lambda$ V. T. 6, N. 6.

16) $\int \frac{Sin^p x}{(Cos x - Sin x)^{p+1}} \frac{dx}{Cos x} = -\pi \, Cosec \, p\pi$ V. T. 3, N. 5.

17) $\int \frac{Sin^p x}{(Cos x - Sin x)^p} \frac{dx}{Cos^2 x} = p\pi \, Cosec \, p\pi$ V. T. 3, N. 4.

18) $\int \frac{Sin^p x}{(Cos x - Sin x)^{p-1}} \frac{dx}{Cos^3 x} = \frac{1-p}{2} p\pi \, Cosec \, p\pi$ V. T. 23, N. 1.

19) $\int \frac{dx}{(Tg^q x + Cot^q x)^{2p} Sin 2x} = \frac{\{\Gamma(p)\}^2}{8q\Gamma(2p)}$ V. T. 4, N. 16.

20) $\int \frac{Sin^p x}{(Cos x - Sin x)^p} \frac{dx}{Sin 2x} = \frac{1}{2} \pi \, Cosec \, p\pi$ V. T. 3, N. 5.

21) $\int \frac{Tg^{p-q} x + Cot^{p-q} x}{(Tg x + Cot x)^{p+q}} \frac{dx}{Sin 2x} = \frac{1}{4} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 4, N. 17.

22) $\int \frac{Tg^p x + Cot^p x}{Tg^q x + 2 Cos \lambda + Cot^q x} \frac{dx}{Sin 2x} = \frac{\pi}{2q} Cosec \lambda . Cosec \frac{p\pi}{q} . Sin \frac{p\lambda}{q}$ V. T. 6, N. 19.

23) $\int \frac{Tg^p x - 2 Cos \lambda + Cot^p x}{Tg^q x + 2 Cos \mu + Cot^q x} \frac{dx}{Sin 2x} = \frac{\pi}{2q} Cosec \mu . Cosec \frac{p\pi}{q} . Sin \frac{p\mu}{q} - \frac{\mu}{2q} Cosec \mu . Cos \lambda$ V. T. 6, N. 20.

1) $\int dx \sqrt{1 - Tg^4 x} = \sqrt{2} \, . \left[F'\left(Sin \frac{\pi}{4}\right) - E'\left(Sin \frac{\pi}{4}\right) \right]$ (VIII, 321).

2) $\int [\sqrt{Tg\, x} + \sqrt{Cot\, x}]\, dx = \frac{1}{2} \pi \sqrt{2}$ V. T. 10, N. 1.

3) $\int \frac{Cos^{a-\frac{1}{2}} 2x\, dx}{Cos^{2a+1} x} = \frac{1^{a/2}}{1^{a/1}} \; \frac{\pi}{2^{a+1}}$ V. T. 7, N. 1.

4) $\int \frac{Sin^{2a-1} x}{Cos^{2a+2} x} dx \sqrt{Cos\, 2x} = \frac{2^{a-1/2}}{3^{a/2}}$ V. T. 7, N. 2.

5) $\int \frac{Sin^{2a} x}{Cos^{2a+3} x} dx \sqrt{Cos\, 2x} = \frac{3^{a-1/2}}{4^{a/2}} \; \frac{\pi}{4}$ V. T. 7, N. 3.

6) $\int \frac{Sin^{2a-1} x}{Cos^{2a+2b} x} Cos^{b-\frac{1}{2}} 2x\, dx = \frac{2^{a-1/2}}{(2b+1)^{a/2}}$ V. T. 7, N. 5.

7) $\int \frac{Sin^{2a} x}{Cos^{2a+2b+1} x} Cos^{b-\frac{1}{2}} 2x\, dx = \frac{1^{a/2}\, 1^{b/2}}{1^{a+b/1}} \; \frac{\pi}{2^{a+b+1}}$ V. T. 7, N. 4.

8) $\int \frac{Sin^{2p} x\, dx}{Cos^{p+\frac{1}{2}} 2x \, . \, Cos\, x} = \frac{1}{2} \pi\, Sec\, p\pi$ V. T. 8, N. 12.

9) $\int \frac{dx \sqrt{Cos\, 2x}}{Cos^2 x} = \sqrt{2} \, . \left[F'\left(Sin \frac{\pi}{4}\right) - E'\left(Sin \frac{\pi}{4}\right) \right]$ (VIII, 321).

10) $\int \frac{Tg^3 x\, dx}{\sqrt{Cos\, 2x}} = \frac{1}{2}$ V. T. 8, N. 1.

11) $\int \frac{(Cot\, x - 1)^{p+\frac{1}{2}} dx}{Cos^2 x} = \frac{2p+1}{2} \pi\, Sec\, p\pi$ V. T. 8, N. 11.

12) $\int \frac{(Cot\, x - 1)^{p-\frac{1}{2}} dx}{Sin^2 x} = \pi\, Sec\, p\pi$ V. T. 8, N. 12.

13) $\int [Tg^{p-1} x + Tg^{q-1} x]\, Sec^{\frac{p+q}{2}} 2x \, . \, Cos^{p+q-2} x\, dx = \frac{1}{2} Cos \left\{ \frac{q-p}{4} \pi \right\} . Sec\left(\frac{q+p}{4} \pi \right) \frac{\Gamma(\frac{1}{2}p)\, \Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{1}{2}[p+q]\right)}$
V. T. 8, N. 25.

14) $\int [Tg^{p-1} x - Tg^{q-1} x]\, Sec^{\frac{p+q}{2}} 2x \, . \, Cos^{p+q-2} x\, dx = \frac{1}{2} Sin \left\{ \frac{q-p}{4} \pi \right\} . Cosec\left(\frac{q+p}{4} \pi \right) \frac{\Gamma(\frac{1}{2}p)\, \Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{1}{2}[p+q]\right)}$
V. T. 8, N. 26.

15) $\int \frac{Sin^{2a} x\, dx}{Cos^{2a+1} x . \sqrt{Cos\, 2x}} = \frac{3^{a-1/2}}{2^{a/2}} \; \frac{\pi}{2}$ V. T. 8, N. 13.

16) $\int \frac{Sin^{2a-1} x\, dx}{Cos^{2a} x \, . \sqrt{Cos\, 2x}} = \frac{2^{a-1/2}}{1^{a/2}}$ V. T. 8, N. 14.

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17) $\int \frac{Sin^{p-\frac{1}{2}} 2x\, dx}{Cos^p 2x \,.\, Cos x} = \frac{2}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} Sin\left\{\frac{2p-1}{4}\pi\right\}$ V. T. 8, N. 24.

18) $\int \frac{1}{\sqrt[3]{Sin^2 x \,.\, Cos x}} \frac{dx}{\sqrt{Cos 2x}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ V. T. 10, N. 6.

19) $\int \frac{1}{\sqrt[3]{Sin x \,.\, Cos^2 x}} \frac{dx}{\sqrt{Cos 2x}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right)$ V. T. 10, N. 5.

20) $\int \frac{\sqrt[3]{Tg x}}{\sqrt{Cos 2x}} \frac{dx}{Cos x} = \frac{1-\sqrt{3}}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right) + 2\sqrt[4]{3}\, E'\left(Cos \frac{\pi}{12}\right)$ V. T. 8, N. 22.

21) $\int \frac{\sqrt[3]{Tg^2 x}}{\sqrt{Cos 2x}} \frac{dx}{Cos x} = 3\sqrt[4]{3}\, E'\left(Sin \frac{\pi}{12}\right) - 3\frac{1+\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ V. T. 8, N. 23.

22) $\int (Cot x - 1)^{p-1} \frac{dx}{Sin 2x} = \frac{1}{2}\pi\, Cosec\, p\pi$ (VIII, 545).

23) $\int (Sec^{\frac{1}{2}} 2x - 1) \frac{dx}{Tg x} = l2$ (IV, 96).

24) $\int (Cos x - Sin x)^{a-\frac{1}{2}} \frac{dx}{Cos^{a+1} x \,.\, \sqrt{Sin x}} = \pi \frac{1^{a/2}}{2^{a/2}}$ V. T. 10, N. 3.

25) $\int (Cos x - Sin x)^{a-\frac{1}{2}} \frac{Tg^b x\, dx}{Cos^{a+1} x \,.\, \sqrt{Sin x}} = \pi \frac{1^{a/2}\, 1^{b/2}}{2^{a+b/2}}$ V. T. 10, N. 4.

26) $\int \frac{dx}{Cos^2 x} \sqrt{\frac{Cos^2 x - p^2 Sin^2 x}{Cos 2x}} = E'(p)$ V. T. 8, N. 15.

27) $\int \frac{dx}{Cos^2 x} \sqrt{\frac{Cos^4 x - p^2 Sin^4 x}{Cos 2x}} = \frac{c F'(c) + b F'(b)}{(b+c)^2} + \frac{b-c}{(b+c)^2}\{E'(b) - E'(c)\}$ $\left[2c^2 = \frac{(1-\sqrt{p})^2}{1+p} \quad 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 9, N. 12.

F. Circ. Dir. irrat. fract. à dén. polyn. et comp. TABLE 39. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tg^2 x\, dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{1-p^2}\left\{\sqrt{\frac{2-p^2}{2}} - E\left(\frac{\pi}{4}, p\right)\right\}$ V. T. 14, N. 9.

2) $\int \frac{Tg^2 x\, dx}{\sqrt{1 - p^2 Sin^2 2x}} = \sqrt{1-p^2} - E'(p) + \frac{1}{2} F'(p)$ (IV, 128).

3) $\int \frac{dx}{Cos x \,.\, \sqrt{Sin x \,.\, (Cos x + p Sin x)}} = \frac{2}{\sqrt{p}}\, l\{\sqrt{p} + \sqrt{1+p}\}$ (VIII, 545).

4) $\int \frac{dx}{Cos\,x\,.\,\sqrt{Sin\,x\,.\,(Cos\,x - p\,Sin\,x)}} = \frac{2}{\sqrt{p}} Arcsin(\sqrt{p})$ (VIII, 545).

5) $\int \frac{Sin^a\,x}{Cos^{a+1}\,x} \frac{dx}{\sqrt{Cos\,x\,.(Cos\,x - Sin\,x)}} = 2\frac{2^{a/2}}{3^{a/2}}$ V. T. 8, N. 1.

6) $\int \frac{Sin^a\,x}{Cos^{a+1}\,x} \frac{dx}{\sqrt{Sin\,x\,.(Cos\,x - Sin\,x)}} = \pi \frac{1^{a/2}}{2^{a/2}}$ V. T. 10, N. 2.

7) $\int \frac{\sqrt{Cot\,x - 1}}{Cos\,x - Sin\,x} \frac{dx}{Cos\,x} = l4$ V. T. 38, N. 23.

8) $\int \frac{1}{q\,Cos\,x - p\,Sin\,x} \frac{dx}{\sqrt{Sin\,x\,.(Cos\,x - Sin\,x)}} = \frac{\pi}{\sqrt{q(q-p)}}$ $[p<q]$ V. T. 10, N. 9.

9) $\int \frac{dx}{Cos^2 x.\,\sqrt{1-p^2\,Sin^2\,2x}} = \sqrt{1-p^2} + F'(p) - E'(p)$ V. T. 39, N. 2 et T. 57, N. 1.

10) $\int \frac{dx}{Cos\,x\,.\,\sqrt{Cos^2\,x + p\,Sin^2\,x}} = \frac{1}{\sqrt{p}} l\{\sqrt{p} + \sqrt{1+p}\}$ V. T. 39, N. 3.

11) $\int \frac{Tg\,x}{\sqrt{p\,Cos^2\,x + Sin^2\,x}} \frac{dx}{\sqrt{Cos\,2x}} = Arccot\,p$ V. T. 12, N. 6.

12) $\int \frac{1}{Tg^2\,x + Cot^2\,x} \frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8}\pi$ V. T. 13, N. 7.

13) $\int \frac{Cot^2\,x}{Tg^2\,x + Cot^2\,x} \frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8}\pi + \frac{1}{4}\sqrt{2}\,.\,F'\left(Sin\frac{\pi}{4}\right)$ V. T. 13, N. 6.

14) $\int \frac{Sin^{p-\frac{1}{2}}\,x}{(Cos\,x - Sin\,x)^{p+\frac{1}{2}}} \frac{dx}{Cos\,x} = \pi\,Sec\,p\pi$ V. T. 8, N. 12.

15) $\int \frac{Sin^{p+\frac{1}{2}}\,x}{(Cos\,x - Sin\,x)^{p+\frac{1}{2}}} \frac{dx}{Cos^2\,x} = \frac{2p+1}{2}\pi\,Sec\,p\pi$ V. T. 8, N. 11.

16) $\int \frac{1}{(Cot\,x - 1)^{p+\frac{1}{2}}} \frac{dx}{Sin\,2x} = \frac{1}{2}\pi\,Sec\,p\pi$ V. T. 8, N. 12.

17) $\int \frac{Sin^{p-\frac{1}{2}}\,2x}{(Cos\,x - Sin\,x)^{2p}} \frac{dx}{Cos\,x} = \frac{2^{\frac{1}{2}-p}}{1-2p} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}}$ $[p<\frac{1}{2}]$ V. T. 8, N. 10.

18) $\int \frac{Sin^q x\,.\,Cos^{1-\frac{1}{2}q}\,2x}{(Cos^2 x - p^2\,Sin^2 x)^{\frac{1}{2}q-1}} \frac{dx}{Cos^4\,x} = \frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{p^3\sqrt{\pi(q-1)(q-3)(q-5)}} \left\{\frac{1+(q-3)p+p^2}{(1+p)^{q-3}} - \frac{1-(q-3)p+p^2}{(1-p)^{q-3}}\right\}$
V. T. 7, N. 6.

19) $\int \frac{Sin^{\frac{1}{2}q}\,2x\,dx}{\{(Cos\,x - Sin\,x)(Cos\,x - p^2\,Sin\,x)\}^{\frac{q+1}{2}}\,Cos\,x} = 2^{\frac{1}{2}q-1} \frac{(1-p)^{-q} - (1+p)^{-q}}{pq\sqrt{\pi}} \Gamma\left(\frac{q+2}{2}\right)\Gamma\left(\frac{1-q}{2}\right)$
V. T. 12, N. 32.

1) $\int Sin^{2a} x\,dx = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{2}$ (VIII, 239).

2) $\int Sin^{2a+1} x\,dx = \frac{2^{a/2}}{3^{a/2}}$ (VIII, 239).

3) $\int Sin^{p-1} x\,dx = 2^{p-2}\,\frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p)}$ (VIII, 611*).

4) $\int Sin\,2ax\,.\,Sin\,px\,dx = (-1)^{a-1}\,\frac{2a}{4a^2-p^2}\,Sin\,\frac{1}{2}p\pi$ (VIII, 332).

5) $\int Sin\,2ax\,.\,Cos\,px\,dx = \frac{2a}{4a^2-p^2}\left\{1+(-1)^{a-1}\,Cos\,\frac{1}{2}p\pi\right\}$ (VIII, 332).

6) $\int Sin\,px\,.\,Cos\,2ax\,dx = \frac{p}{4a^2-p^2}\left\{-1+(-1)^a\,Cos\,\frac{1}{2}p\pi\right\}$ (VIII, 332).

7) $\int Sin\,px\,.\,Sin\,qx\,dx = \frac{1}{p^2-q^2}\left\{q\,Sin\,\frac{1}{2}p\pi\,.\,Cos\,\frac{1}{2}q\pi - p\,Cos\,\frac{1}{2}p\pi\,.\,Sin\,\frac{1}{2}q\pi\right\}$ (VIII, 331).

8) $\int Sin\,px\,.\,Cos\,qx\,dx = \frac{1}{p^2-q^2}\left\{p - p\,Cos\,\frac{1}{2}p\pi\,.\,Cos\,\frac{1}{2}q\pi - q\,Sin\,\frac{1}{2}p\pi\,.\,Sin\,\frac{1}{2}q\pi\right\}$ (VIII, 332).

9) $\int Sin^{q-1}x\,.\,Sin\{(q+1)x\}\,dx = \frac{1}{q}\,Sin\,\frac{1}{2}q\pi$ (VIII, 373).

10) $\int Sin^{q-1}x\,.\,Cos\{(q+1)x\}\,dx = \frac{1}{q}\,Cos\,\frac{1}{2}q\pi$ (VIII, 373).

11) $\int Sin^{2a}x\,.\,Sin\{(2b+1)x\}\,dx = \frac{1^{2a/1}}{[2^2-(2b+1)^2][4^2-(2b+1)^2]\ldots[(2a)^2-(2b+1)^2]}\,\frac{1}{2b+1}$ (VIII, 243).

12) $\int Sin^{2a+1}x\,.\,Sin\{(2b+1)x\}\,dx = \frac{(-1)^b\pi}{2^{2a+2}}\binom{2a+1}{a-b}\,[a>b],\ =0\ [a<b]$ (VIII, 275, 244).

13) $\int Sin^{2a}x.Sin\,px\,dx = \frac{1}{p}\,\frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]}\Big\{1-Cos\,\frac{1}{2}p\pi.\Big(1-\frac{p^2}{1.2}-\frac{p^2[2^2-p^2]}{1.2.3.4}-\ldots$
$\ldots-\frac{p^2[2^2-p^2]\ldots[(2a-2)^2-p^2]}{1^{2a/1}}\Big)\Big\}$ $\left[\begin{array}{l}\text{Pour } p \text{ entier pair, il}\\ \text{faut que } p>2a.\end{array}\right]$ (VIII, 244).

14) $\int Sin^{2a+1}x\,.\,Sin\,px\,dx = p\,Cos\,\frac{1}{2}p\pi\,\frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]}\Big\{1+\frac{1^2-p^2}{2.3}+\ldots$
$\ldots+\frac{[1^2-p^2]\ldots[(2a-1)^2-p^2]}{1^{2a+1/1}}\Big\}$ $\left[\begin{array}{l}\text{Pour } p \text{ entier impair, il}\\ \text{faut que } p>2a+1.\end{array}\right]$ (VIII, 244).

15) $\int Sin^p x\,.\,Sin\{(p+2a)x\}\,dx = \frac{p+2a}{Cos\{(a-1)\pi\}}\,Cos\,\frac{1}{2}p\pi\,.\sum_0^{a-1}(-1)^n\,2^{2n}\,\frac{(p+a+1)^{n/1}(a-1)^{n/1}}{(p+1)^{2n/1}}$ (VIII, 373).

F. Circ. Dir. rat. ent. à un fact. $Sin^a x$. TABLE 40, suite. Lim. 0 et $\frac{\pi}{2}$.

16) $\int Sin^{2a} x . Cos\, 2bx\, dx = \frac{(-1)^b \pi}{2^{2a+1}} \binom{2a}{a-b}$ $[a > b]$, $= 0$ $[a < b]$ (VIII, 275, 243).

17) $\int Sin^{2a+1} x . Cos\, 2bx\, dx = \frac{1^{2a+1/1}}{[1^2-(2b)^2][3^2-(2b)^2]\ldots[(2a+1)^2-(2b)^2]}$ (VIII, 244).

18) $\int Sin^{2a} x . Cos\, px\, dx = \frac{1}{p} Sin \frac{1}{2} p\pi \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]} \Big\{1 - \frac{p^2}{1.2} - \frac{p^2[2^2-p^2]}{1.2.3.4} - \ldots$

$\ldots - \frac{p^2[2^2-p^2]\ldots[(2a-2)^2-p^2]}{1^{2a/1}}\Big\}$ [Pour p entier pair, il faut que $p > 2a$.] (VIII, 244).

19) $\int Sin^{2a+1} x . Cos\, px\, dx = \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]} \Big\{1 - p\, Sin \frac{1}{2} p\pi . \Big(1 + \frac{1^2-p^2}{1.2.3} + \ldots$

$\ldots + \frac{[1^2-p^2]\ldots[(2a-1)^2-p^2]}{1^{2a+1/1}}\Big)\Big\}$ [Pour p entier impair, il faut que $p > 2a+1$.] (VIII, 245).

20) $\int Sin^p x . Cos\{(p+2a)x\}\, dx = \frac{p+2a}{Cos\, a\pi} Sin \frac{1}{2} p\pi . \sum_{0}^{a-1} (-1)^n\, 2^{2n} \frac{(p+a+1)^{n/1} (a-1)^{n/1}}{(p+1)^{2n/1}}$

(VIII, 373).

F. Circ. Dir. rat. ent. à un fact. $Cos^a x$. TABLE 41. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Cos^{2a} x\, dx = \frac{\pi}{2} \frac{1^{a/2}}{2^{a/2}}$ (VIII, 239).

2) $\int Cos^{2a+1} x\, dx = \frac{2^{a/2}}{3^{a/2}}$ (VIII, 239).

3) $\int Cos^p x\, dx = \frac{\pi}{2^{p+1}} \frac{\Gamma(p+1)}{\{\Gamma(\frac{1}{2}p+1)\}^2}$ (VIII, 611).

4) $\int Cos\, 2ax . Cos\, px\, dx = (-1)^{a-1} \frac{p}{4a^2-p^2} Sin \frac{1}{2} p\pi$ (VIII, 332).

5) $\int Cos\, px . Cos\, qx\, dx = \frac{1}{p^2-q^2}\Big(p\, Sin \frac{1}{2} p\pi . Cos \frac{1}{2} q\pi - q\, Cos \frac{1}{2} p\pi . Sin \frac{1}{2} q\pi\Big)$ (VIII, 331).

6) $\int Cos^{q-1} x . Sin\{(q+1)x\}\, dx = \frac{1}{q}$ (VIII, 372).

7) $\int Cos^{q-1} x . Cos\{(q+1)x\}\, dx = 0$ (VIII, 371).

8) $\int Cos^q x . Cos\, qx\, dx = \frac{\pi}{2^{q+1}}$ (VIII, 621).

9) $\int Cos^a x . Sin\, ax\, dx = \frac{1}{2^{a+1}} \sum_{1}^{a} \frac{2^n}{n}$ (IV, 101).

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10) $\int Cos^{2a} x \,.\, Sin px\, dx = \frac{1}{p} \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]} \left\{1 - Cos \frac{1}{2} p\pi - \frac{p^2}{1.2} - \ldots \right.$

$\left. \ldots - \frac{p^2[2^2-p^2]\ldots[(2a-2)^2-p^2]}{1^{2a/1}}\right\}$ [Pour p entier pair, il faut que $p > 2a$.] (VIII, 245).

11) $\int Cos^{2a+1} x . Sin px\, dx = p \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]} \left\{\frac{1}{p} Sin \frac{1}{2} p\pi - 1 - \frac{1^2-p^2}{1.2.3} - \ldots\right.$

$\left. \ldots - \frac{[1^2-p^2]\ldots[(2a-1)^2-p^2]}{1^{2a+1/1}}\right\}$ [Pour p entier impair, il faut que $p > 2a+1$.] (VIII, 245).

12) $\int Cos^p x \,.\, Sin\{(p+2a)x\}\, dx = (p+2a) \sum_1^a (-1)^{n-1} 2^{2n-2} \frac{(p+a+1)^{n-1/1}(a+1)^{n-1/1}}{(p+1)^{2n/1}}$ (VIII, 372).

13) $\int Cos^{2a} x \,.\, Cos 2bx\, dx = \frac{\pi}{2^{2a+1}} \frac{1^{2a/1}}{1^{a+b/1}\, 1^{a-b/1}} = \frac{\pi}{2^{2a+1}} \binom{2a}{a-b}$ $[a > b]$ (VIII, 621, 275).

14) $\int Cos^{2a+1} x \,.\, Cos\{(2b+1)x\}\, dx = \frac{\pi}{2^{2a+2}} \binom{2a+1}{a-b}$ $[a > b]$ (VIII, 275).

15) $\int Cos^{2a} x \,.\, Cos px\, dx = \frac{1^{2a/1}}{[2^2-p^2][4^2-p^2]\ldots[(2a)^2-p^2]} \frac{1}{p} Sin \frac{1}{2} p\pi$ [Pour p entier pair, il faut que $p > 2a$.] (VIII, 243).

16) $\int Cos^{2a+1} x . Cos px\, dx = \frac{1^{2a+1/1}}{[1^2-p^2][3^2-p^2]\ldots[(2a+1)^2-p^2]} Cos \frac{1}{2} p\pi$ [Pour p entier impair, il faut que $p > 2a+1$.] (VIII, 244).

17) $\int Cos^p x \,.\, Cos\{(p+2a)x\}\, dx = 0$ (VIII, 279).

18) $\int Cos^p x \,.\, Cos\{(p-2a)x\}\, dx = \frac{\pi}{2^{p+1}} \frac{(p-a+1)^{a/1}}{1^{a/1}}$ $[p > a-1]$ (VIII, 621).

19) $\int Cos^p x \,.\, Cos\{(p+2q)x\}\, dx = \frac{\Gamma(p+1)\Gamma(q)}{2^{p+1}\Gamma(p+q+1)} Sin q\pi$ (VIII, 429).

20) $\int Cos^{p+2a} x \,.\, Cos px\, dx = \frac{p^{a/1}}{1^{a/1}} \frac{\pi}{2^{p+2a+1}} \sum_0^\infty \frac{(n+a)^{2n/-1}}{(p+a-1)^{n/-1}\, 1^{n/1}}$ (VIII, 306).

21) $\int Cos^p x \,.\, Cos qx\, dx = \frac{\pi}{2^{p+1}} \frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 515).

1) $\int Tang^{2p-1} x\,dx = \frac{1}{2}\pi\, Cosec\, p\pi \quad [p<1]$ (VIII, 486).

2) $\int Sin^{2a} x\,.\,Cos^{2b} x\,dx = \frac{1^{a/2}\,1^{b/2}}{2^{a+b/2}}\,\frac{\pi}{2}$ (VIII, 240).

3) $\int Sin^{2a} x\,.\,Cos^{2b+1} x\,dx = \frac{1^{a/2}\,2^{b/2}}{3^{a+b/2}}$ (VIII, 241).

4) $\int Sin^{2a+1} x\,.\,Cos^{2b} x\,dx = \frac{2^{a/2}\,1^{b/2}}{3^{a+b/2}}$ (VIII, 240).

5) $\int Sin^{2a+1} x\,.\,Cos^{2b+1} x\,dx = \frac{1^{a/1}\,1^{b/1}}{2\,.\,1^{a+b+1/1}}$ (VIII, 241).

6) $\int Cos^{2q-2} x\,.\,Tang^{p-1} x\,dx = \frac{\Gamma(\frac{1}{2}p)\,\Gamma(q-\frac{1}{2}p)}{2\,\Gamma(q)}$ V. T. 17, N. 19.

7) $\int Sin\,2ax\,.\,Tg^p x\,dx = (-1)^{a-1}\frac{\pi}{4\,Sin\,\frac{1}{2}p\pi}\binom{p}{a}\sum_0^a\binom{a}{n}\frac{p^{n/1}}{(p-a+1)^{n/1}}$

8) $\int Cos\,2ax\,.\,Tg^p x\,dx = (-1)^{a}\frac{\pi}{4\,Cos\,\frac{1}{2}p\pi}\binom{p}{a}\sum_0^a\binom{a}{n}\frac{p^{n/1}}{(p-a+1)^{n/1}}$

9) $\int Cos^p x\,.\,Sin\,px\,.\,Sin\,2ax\,dx = \frac{\pi}{2^{p+2}}\,\frac{\Gamma(p+1)}{1^{a/1}\,\Gamma(p-a+1)} =$ 10) $\int Cos^p x\,.\,Cos\,px\,.\,Cos\,2ax\,dx$

11) $\int Cos^{p+q-2} x\,.\,Sin\,px\,.\,Sin\,qx\,dx = \frac{\pi}{2^{p+q}}\,\frac{\Gamma(p+q-1)}{\Gamma(p)\,\Gamma(q)} =$ 12) $\int Cos^{p+q-2} x\,.\,Cos\,px\,.\,Cos\,qx\,dx$

Sur 7) à 12) voyez Cauchy, Ann. Math. T. 17, 84.

13) $\int Cos^{a+p-1} x\,.\,Sin\,px\,.\,Sin\{(a+1)x\}\,dx = \frac{\pi}{2^{p+a+1}}\,\frac{p^{a/1}}{1^{a/1}} =$ 14) $\int Cos^{a+p-1} x\,.\,Cos\,px\,.\,Cos\{(a+1)x\}\,dx$

(VIII, 306).

15) $\int Cos^{a+p-1} x\,.\,Sin\,px\,.\,Cos\{(a+1)x\}\,.\,Sin\,x\,dx = \frac{\pi}{2^{p+a+1}}\,\frac{p^{a/1}}{1^{a/1}}$ (VIII, 307).

16) $\int Cos^{p+q} x\,.\,Sin\,px\,.\,Sin\,qx\,dx = \frac{\pi}{2^{p+q+2}}\sum_1^\infty\binom{p}{n}\binom{q}{n}$ (VIII, 632).

17) $\int Cos^{p+q} x\,.\,Cos\,px\,.\,Cos\,qx\,dx = \frac{\pi}{2^{p+q+2}}\left\{2+\sum_1^\infty\binom{p}{n}\binom{q}{n}\right\}$ (VIII, 632).

18) $\int Cos^a x\,.\,Sin\,px\,.\,Sin\,x\,dx = \frac{p\pi}{2^{a+2}}\,\frac{1^{a/1}}{\Gamma\left(\frac{a+p+3}{2}\right)\Gamma\left(\frac{a-p+3}{2}\right)}$ (IV, 105).

19) $\int Cos^a x \,.\, Sin\, a x \,.\, Sin\, 2\, b x\, dx = \frac{\pi}{2^{a+2}} \binom{a}{b} =$ 20) $\int Cos^a x \,.\, Cos\, a x \,.\, Cos\, 2\, b x\, dx$ (VIII, 275).

21) $\int Cos^{a-1} x \,.\, Cos\{(a+1)x\} \,.\, Cos\, 2\, b x\, dx = \frac{\pi}{2^{a+1}} \frac{(a-b+1)^{b-1/1}}{1^{b-1/1}}$ (IV, 105).

22) $\int Cos^{p+2a} x \,.\, Sin\, p x \,.\, Tg\, x\, dx = \frac{\Gamma(a+p)}{1^{a/1}\Gamma(p)} \frac{\pi}{2^{p+2a+1}} \sum_0^\infty \binom{a}{n} \frac{a^{n/-1}}{(p+a-1)^{n/-1}}$ (VIII, 306*).

23) $\int Sin^{p-1} x \,.\, Cos^{q-1} x \,.\, Sin\{(p+q)x\}\, dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} Sin \frac{1}{2} p\pi$ (VIII, 430).

24) $\int Sin^{p-1} x \,.\, Cos^{q-1} x \,.\, Cos\{(p+q)x\}\, dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)} Cos \frac{1}{2} p\pi$ (VIII, 430).

F. Circ. Dir. rat. ent. comp. à argument mon. TABLE 43. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin(p\, Tg\, x)\, dx = \frac{1}{2}\{e^{-p} Ei(p) - e^p Ei(-p)\}$ V. T. 160, N. 3.

2) $\int Cos(p\, Tg\, x)\, dx = \frac{1}{2}\pi e^{-p}$ (VIII, 546).

3) $\int Sin^2(p\, Tg\, x)\, dx = \frac{1}{4}\pi(1 - e^{-2p})$ V. T. 160, N. 10.

4) $\int Cos^2(p\, Tg\, x)\, dx = \frac{1}{4}\pi(1 + e^{-2p})$ V. T. 160, N. 11.

5) $\int Sin(p\, Tg\, x) \,.\, Tg\, x\, dx = \frac{1}{2}\pi e^{-p}$ (VIII, 546).

6) $\int Cos(p\, Tg\, x) \,.\, Tg\, x\, dx = -\frac{1}{2}\{e^{-p} Ei(p) + e^p Ei(-p)\}$ V. T. 160, N. 6.

7) $\int Sin(p\, Tg\, x) \,.\, Sin\, 2x\, dx = \frac{1}{2} p\pi e^{-p}$ (VIII, 546).

8) $\int Cos(p\, Tg\, x) \,.\, Sin^2 x\, dx = \frac{1-p}{4}\pi e^{-p}$ (VIII, 546).

9) $\int Cos(p\, Tg\, x) \,.\, Cos^2 x\, dx = \frac{1+p}{4}\pi e^{-p}$ (VIII, 546).

10) $\int Cos(p\, Tg\, x) \,.\, Cos\, 2x\, dx = \frac{1}{2} p\pi e^{-p}$ V. T. 43, N. 8, 9.

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11) $\int Sin(p\,Tg\,x) . Sin^2 x . Tg\,x\,dx = \frac{2-p}{4}\pi e^{-p}$ (VIII, 546).

12) $\int Cos^{q-1} x . Sin\{(q+1)x\} . Sin(p\,Tg\,x)\,dx = \frac{\pi}{2\,\Gamma(q+1)} p^q e^{-q} =$ 13) $\int Cos^{q-1} x . Cos\{(q+1)x\} .$ $. Cos(p\,Tg\,x)\,dx$ Sur 12) et 13) voyez Cauchy, Ann. Math. T. 17, 84.

14) $\int Sin(p\,Sin\,x) . Sin\,2\,x\,dx = \frac{2}{q^2}(Sin\,q - q\,Cos\,q) =$ 15) $\int Sin(p\,Cos\,x) . Sin\,2\,x\,dx$ V. T. 149, N. 1.

16) $\int Cos(p\,Cos\,x) . Cos\,2\,q\,x\,dx = \frac{1}{2q} Sin\,q\pi . \left\{1 + \sum_1^\infty \frac{(-1)^n}{[1^2-q^2][2^2-q^2]...[n^2-q^2]}\left(\frac{p}{2}\right)^{2n}\right\}$ (IV, 107).

17) $\int Sin(p\,Cos\,x) . Tg\,x\,dx = Si(p)$ V. T. 149, N. 5.

18) $\int Sin(p\,Cot\,x) . Tg\,x\,dx = \frac{\pi}{2}(1 - e^{-q})$ (VIII, 546*).

19) $\int Sin^2(p\,Cot\,x) . Tg^2 x\,dx = \frac{\pi}{4}(e^{-2p} + 2p - 1)$ V. T. 172, N. 13.

20) $\int [Cos(q\,Cot\,x) - Cos(p\,Cot\,x)]\,Tg^2 x\,dx = \frac{\pi}{2}(e^{-p} - e^{-q}) + \frac{p-q}{2}\pi$ V. T. 173, N. 20.

F. Circ. Dir. rat. ent. comp. à argum. polyn. TABLE 44. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Cos(2\,x - 2\,Tg\,x)\,dx = \frac{2\pi}{e^2}$ V. T. 170, N. 12.

2) $\int Cos^{p-1} x . Cos\{q\,Tg\,x - (p+1)x\}\,dx = \frac{\pi}{\Gamma(p+1)} q^p e^{-q}$ V. T. 43, N. 12, 13.

3) $\int Cos^{p-1} x . Cos\{q\,Tg\,x + (p+1)x\}\,dx = 0$ V. T. 43, N. 12, 13.

4) $\int Cos^{p-1} x . Cos\{q\,Tg\,x + (p-1)x\}\,dx = \frac{\pi}{2^p} e^{-q}$ (IV, 108).

5) $\int Sin\left(\frac{1}{2}r\pi - p\,Tg\,x\right) . Tg^{r-1}\,dx = \frac{1}{2}\pi e^{-p} =$ 6) $\int Cos\left(\frac{1}{2}r\pi - p\,Tg\,x\right) . Tg^r x\,dx$ V. T. 160, N. 20, 21.

7) $\int Sin^{p-1} x . Cos^{q-1} x . Sin\left\{c\,Tg\,x + (p+q)x - \frac{1}{2}p\pi\right\}\,dx = 0$ (IV, 109).

1) $\int Cos^{a+p} x . Sin \{(a+p+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2} \frac{p^{a/1}}{1^{a/1}}$ V. T. 45, N. 3, 4.

2) $\int Cos^{a+p} x . Sin \{(a-p+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2 . 1^{a/1}} \left[\frac{1}{2^{p+a-1}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1} - p^{a/1} \right]$ V. T. 45, N. 3, 4.

3) $\int Cos^{a+p} x . Sin\, p\, x . Cos \{(a+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2 . 1^{a/1}} \left[p^{a/1} - \frac{1}{2^{p+a}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1} \right]$ (VIII, 307).

4) $\int Cos^{a+p} x . Cos\, p\, x . Sin \{(a+1)x\} \frac{dx}{Sin\, x} = \frac{\pi}{2^{p+a+1}\, 1^{a/1}} \sum_0^a \binom{a}{n} 2^{n/2} p^{a-n/1}$ (VIII, 307).

5) $\int Sin\, p\, x . Cos^{p-1} x \frac{dx}{Sin\, x} = \frac{1}{2} \pi$ (VIII, 306).

6) $\int Cos\, p\, x . Cos^{p-1} x \frac{dx}{Sin\, x} = \infty$ (VIII, 618).

7) $\int Cos \left\{ p \left(\frac{1}{2} \pi - x \right) \right\} \frac{dx}{Sin^2 x} = 2^{p-1} \pi =$

8) $\int Cos\, p\, x \frac{dx}{Cos^2 x}$

9) $\int Sin\, 2\, a\, x . Sin\, p\, x \frac{dx}{Cos^p x} = (-1)^a 2^{p-2} \pi \frac{p^{a/1}}{1^{a/1}} =$

10) $\int Cos\, 2\, a\, x . Cos\, p\, x \frac{dx}{Cos^p x}$

11) $\int Sin^{p+q-2} 2\, x . Sin\, q\, x \frac{dx}{Sin^p x} = \frac{\pi}{2\, Sin \frac{1}{2} p \pi} \frac{\Gamma(p+q-1)}{\Gamma(p) \Gamma(q)}$

12) $\int Cos^{p+q-2} 2\, x . Cos\, q\, x \frac{dx}{Sin^p x} = \frac{\pi}{2\, Cos \frac{1}{2} p \pi} \frac{\Gamma(p+q-1)}{\Gamma(p) \Gamma(q)}$

Sur 7) à 12) voyez Cauchy, Ann. Math. T. 17, 84.

13) $\int Sin^{2p-2} x \frac{dx}{Cos^{2p-1} x} = \frac{\Gamma(2p-1) \Gamma(1-p)}{2^{2p-1} \Gamma(p)} =$

14) $\int Cos^{2p-2} x \frac{dx}{Sin^{2p-1} x}$ V. T. 3, N. 12.

15) $\int Sin \{(2-p)x\} \frac{dx}{Sin^p x} = \frac{1}{1-p} Cos \frac{1}{2} p \pi$ $[2 > p > 0]$ (VIII, 306).

16) $\int Cos \{(2-p)x\} \frac{dx}{Sin^p x} = \frac{1}{1-p} Sin \frac{1}{2} p \pi$ $[p^2 < 1]$ (VIII, 306).

17) $\int Sin\, q\, x . Cot\, x\, dx = \frac{1}{8} \pi q^2$ V. T. 305, N. 6.

18) $\int Cos^{a-1} x . Sin \{(a+1)x\} \frac{dx}{Tg\, x} = \frac{1}{2} \pi$ V. T. 45, N. 1.

19) $\int Cot^p x\, dx = \frac{1}{2} \pi\, Sec \frac{1}{2} p \pi$ $[p < 1]$ (VIII, 306).

20) $\int Sin\, 2\, x . Cot^p x\, dx = \frac{1}{2} p \pi\, Cosec \frac{1}{2} p \pi$ $[0 < p < 2]$ (VIII, 306).

21) $\int Cos\,2x\,.Cot^p x\,dx = \frac{1}{2} p\pi\, Sec\, \frac{1}{2} p\pi$ $[p^2 < 1]$ (VIII, 305).

22) $\int Sin^{2q-2} x\,.Cot^{p-1} x\,dx = \frac{\Gamma(\frac{1}{2}p)\,\Gamma(q-\frac{1}{2}p)}{2\,\Gamma(q)}$ V. T. 17, N. 19.

23) $\int Cos^{p-2} x\,.Sin\,px\,.Cot^q x\,dx = \frac{\Gamma(p+q-1)}{2\,\Gamma(p)\,\Gamma(q)}\,\pi\, Cosec\, \frac{1}{2} q\pi$ $[2 > q > 0]$ (VIII, 305).

24) $\int Cos^{p-2} x\,.Cos\,px\,.Cot^q x\,dx = \frac{\Gamma(p+q-1)}{2\,\Gamma(p)\,\Gamma(q)}\,\pi\, Sec\, \frac{1}{2} q\pi$ $[1 > q > 0]$ (VIII, 305).

25) $\int \frac{Sin^2 x\,dx}{Cos\,2x} = -\frac{1}{4}\pi$ (VIII, 531*).

26) $\int \frac{Cos^2 x\,dx}{Cos\,2x} = \frac{1}{4}\pi$ (VIII, 531*).

27) $\int \frac{Tg^{p-1} x\,dx}{Cos\,2x} = \frac{1}{2}\pi\, Cot\, \frac{1}{2} p\pi$ V. T. 17, N. 11.

28) $\int \frac{Cos^2 x\,dx}{Cos^2 2x} = 0$ V. T. 17, N. 17.

29) $\int \frac{dx}{Cos\,2x\,.Tg^{p-1} x} = -\frac{1}{2}\pi\, Cot\, \frac{1}{2} p\pi$ V. T. 17, N. 11.

F. Circ. Dir. rat. fract. à num. bin. et dén. mon. TABLE 46. Lim. 0 et $\frac{\pi}{2}$.

1) $\int (Sin^p x - Cosec^p x)\,\frac{dx}{Cos\,x} = -\frac{1}{2}\pi\, Tg\, \frac{1}{2} p\pi$ V. T. 4, N. 11.

2) $\int (Sin^p x - Sin^q x)\,\frac{dx}{Cos\,x} = \frac{1}{2}\left\{Z'\left(\frac{q+1}{2}\right) - Z'\left(\frac{p+1}{2}\right)\right\}$ V. T. 2, N. 9.

3) $\int (Cos^p x - Sec^p x)\,\frac{dx}{Sin\,x} = -\frac{1}{2}\pi\, Tg\, \frac{1}{2} p\pi$ V. T. 4, N. 11.

4) $\int (Sec\,x - 1)^p\, Tg\,x\,dx = -\pi\, Cosec\,p\pi$ V. T. 3, N. 5.

5) $\int (Sec\,x - 1)^{1-p}\, Sin\,2x\,dx = (1-p)p\pi\, Cosec\,p\pi$ V. T. 1, N. 3.

6) $\int (Cosec\,x - 1)^p\,\frac{dx}{Tg\,x} = -\pi\, Cosec\,p\pi$ V. T. 3, N. 5.

7) $\int (Sin^{p-1} x + Sin^{q-1} x)\,\frac{dx}{Cos^{p+q-1} x} = \frac{1}{2}\, Cos\left(\frac{q-p}{4}\pi\right).Sec\left(\frac{q+p}{4}\pi\right)\frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{p+q}{2}\right)}$ V. T. 8, N. 25.

8) $\int (Sin^{p-1} x - Sin^{q-1} x)\,\frac{dx}{Cos^{p+q-1} x} = \frac{1}{2}\, Sin\left(\frac{q-p}{4}\pi\right).Cosec\left(\frac{q+p}{4}\pi\right)\frac{\Gamma(\frac{1}{2}p)\Gamma(\frac{1}{2}q)}{\Gamma\left(\frac{p+q}{2}\right)}$ V. T. 8, N. 26.

1) $\int \frac{Sin\, x\, dx}{Sin\, x \pm q\, Cos\, x} = \frac{q}{1+q^2}\left(\frac{\pi}{2q} \pm lq\right)$ (VIII, 544).

2) $\int \frac{Cos\, x\, dx}{Sin\, x \pm q\, Cos\, x} = \frac{1}{1+q^2}\left(\pm \frac{1}{2} q\pi - lq\right)$ (VIII, 544).

3) $\int \frac{dx}{p+q Cos\, x} = \frac{1}{\sqrt{p^2-q^2}} Arccos \frac{q}{p} [q^2 < p^2], = \frac{1}{\sqrt{q^2-p^2}} l \frac{q+\sqrt{q^2-p^2}}{p} [q^2 > p^2], = \frac{1}{p} [q=p], =$
$= \infty\; [q = -p]$ (VIII, 205).

4) $\int \frac{Tg^p\, x\, dx}{1+Sin\, 2x\, Cos\, \lambda} = \pi\, Cosec\, \lambda\, .\, Cosec\, p\pi\, .\, Sin\, p\lambda \left[\begin{matrix} p^2 < 1, \\ \lambda^2 < \pi^2 \end{matrix}\right]$ V. T. 20, N. 3.

5) $\int \frac{q\, Sin\, x - Cos\, x}{Sin\, x + q\, Cos\, x} dx = lq$ (IV, 113).

6) $\int \frac{dx}{p^2 \pm q^2\, Sin^2\, x} = \frac{\pi}{2p\sqrt{p^2 \pm q^2}} =$ 7) $\int \frac{dx}{p^2 \pm q^2\, Cos^2\, x}$ (VIII, 305).

8) $\int \frac{Sin\, x\, dx}{1 - Cos^2 \lambda\, .\, Sin^2 x} = (\pi - 2\lambda)\, Cosec\, 2\lambda$ (VIII, 543*).

9) $\int \frac{Sin^4\, x\, dx}{1+p\, Sin^2\, x} = \frac{\pi}{2p^2\sqrt{1+p}} + \frac{p-2}{4p^2}\pi$ (VIII, 338).

10) $\int \frac{Cos^{2a}\, x\, dx}{q^2 - Cos^2\, x} = \frac{\pi}{q^2} \sum_0^\infty \frac{3^{a+n/2}}{2^{a+n/2}} \frac{1}{q^{2n}}$ (VIII, 419).

11) $\int \frac{Cos^{2a+1}\, x\, dx}{q^2 - Cos^2\, x} = \frac{1}{q^2} \sum_0^\infty \frac{2^{a+n/2}}{3^{a+n/2}} \frac{1}{q^{2n}}$ (VIII, 420).

12) $\int \frac{Cos\, x\, dx}{Sin^2 \lambda + Cos^2 \lambda\, .\, Cos^2 x} = -Sec\, \lambda\, .\, l\, Tg\, \frac{1}{2}\lambda$ (VIII, 323).

13) $\int \frac{dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{\pi}{2pq}$ (VIII, 305).

14) $\int \frac{Sin^2\, x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{\pi}{2p(p+q)}$ (VIII, 305).

15) $\int \frac{Cos^2\, x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{\pi}{2q(p+q)}$ (VIII, 305).

16) $\int \frac{Cos\, 2x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{\pi}{2pq} \frac{p-q}{p+q}$ (VIII, 305).

17) $\int \frac{Sin\, 2x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{2}{p^2 - q^2} l \frac{p}{q}$ (VIII, 546).

18) $\int \frac{Tang\, 2\, x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{2}{p^2 + q^2}\, l \frac{p}{q}$ (VIII, 531).

19) $\int \frac{Tang^r\, x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{1}{2}\, \pi\, q^{r-1}\, p^{-r-1}\, Sec \frac{1}{2}\, r\, \pi$ V. T. 17, N. 10.

20) $\int \frac{Cos^r\, x\, .\, Cos\, r\, x\, dx}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} = \frac{\pi}{2\, q}\, \frac{p^{r-1}}{(p+q)^r}$ (VIII, 611*).

21) $\int \frac{Tg^p\, x\, dx}{1 - Cos^2 \lambda\, .\, Sin^2\, 2\, x} = \frac{1}{2}\, \pi\, Sec \frac{1}{2}\, p\, \pi . Cosec\, \lambda . Cos \left\{ p \left(\frac{1}{2}\, \pi - \lambda \right) \right\}$ V. T. 47, N. 4.

22) $\int \frac{Sin\, 2\, x\, .\, Tg^p\, x\, dx}{1 - Cos^2\, \lambda\, .\, Sin^2\, 2\, x} = \pi\, Cosec \frac{1}{2}\, p\, \pi\, .\, Cosec\, 2\, \lambda\, .\, Sin \left\{ p \left(\frac{1}{2}\, \pi - \lambda \right) \right\}$ V. T. 47, N. 4.

23) $\int \frac{Sin^2\, x\, .\, Tg^p\, x\, dx}{1 - Cos^2 \lambda\, .\, Sin^2\, 2\, x} = \frac{1}{2}\, \pi\, Sec \frac{1}{2}\, p\, \pi . Cosec\, 2\, \lambda . Cos \left\{ \frac{1}{2}\, p\, \pi - (p+1)\, \lambda \right\}$ V. T. 47, N. 4.

24) $\int \frac{Cos^2\, x\, .\, Tg^p\, x\, dx}{1 - Cos^2 \lambda\, .\, Sin^2\, 2\, x} = \frac{1}{2}\, \pi\, Sec \frac{1}{2}\, p\, \pi . Cosec\, 2\, \lambda . Cos \left\{ \frac{1}{2}\, p\, \pi - (p-1)\, \lambda \right\}$ V. T. 47, N. 4.

25) $\int \frac{Cos\, 2\, x\, .\, Tg^p\, x\, dx}{1 - Cos^2 \lambda\, .\, Sin^2\, 2\, x} = - \frac{1}{2}\, \pi\, Sec \frac{1}{2}\, p\, \pi . Sec\, \lambda\, .\, Sin \left\{ p \left(\frac{1}{2}\, \pi - \lambda \right) \right\}$ V. T. 47, N. 23, 24.

Dans 21) à 25) on a $\lambda^2 < \pi^2$, $p^2 < 1$.

26) $\int \frac{Cos^2\, x\, .\, Tg^{p-1}\, x\, dx}{1 - 3\, Sin^2\, x\, .\, Cos^2\, x} = \frac{\pi}{\sqrt{3}}\, Cosec \frac{1}{2}\, p\, \pi\, .\, Sin \left\{ \frac{2-p}{6}\, \pi \right\}$ $[4 > p]$ (IV, 114).

27) $\int \frac{Cos\, 2\, a\, x\, dx}{1 - p^2\, Sin^2\, x} = \frac{(-1)^a\, \pi}{2\, \sqrt{1-p^2}} \left\{ \frac{1 - \sqrt{1-p^2}}{p} \right\}^{2\,a}$ (IV, 136*).

28) $\int \frac{Tg\, x\, dx}{Cos^p\, x + Sec^p\, x} = \frac{\pi}{4\, p}$ V. T. 2, N. 12.

29) $\int \frac{Cos^p\, x + Cos^q\, x}{Cos^{p+q}\, x + 1}\, Tg\, x\, dx = \frac{\pi}{p+q}\, Sec \left(\frac{q-p}{q+p}\, \frac{\pi}{2} \right)$ V. T. 2, N. 18.

30) $\int \frac{Cos^p\, x - Cos^q\, x}{Cos^{p+q}\, x - 1}\, Tg\, x\, dx = \frac{\pi}{p+q}\, Tg \left(\frac{q-p}{q+p}\, \frac{\pi}{2} \right)$ V. T. 2, N. 19.

F. Circ. Dir. rat. fract. à dén. puiss. de bin. TABLE 48. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{(q\, Sin\, x + r\, Cos\, x)^2} = \frac{1}{q\, r}$ (VIII, 209).

2) $\int \frac{q\, Cos\, x - r\, Sin\, x}{(q\, Sin\, x + r\, Cos\, x)^2}\, dx = \frac{q-r}{q\, r}$ (VIII, 209).

3) $\int \frac{Cos^2\, x\, .\, Tg^{p+1}\, x\, dx}{(1 + Cos\, \lambda\, .\, Sin\, 2x)^2} = \frac{\pi}{2\, Sin\, p\, \pi\, .\, Sin^3\, \lambda}\, (p\, Sin\, \lambda\, .\, Cos\, p\, \lambda - Cos\, \lambda\, .\, Sin\, p\, \lambda)$ V. T. 20, N. 8.

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4) $\int \frac{dx}{(Tg\,x + Cot\,x)^2} = \frac{\pi}{16}$ V. T. 17, N. 16.

5) $\int \frac{Sin^{1-p}x \,.\, Cos^p x\,dx}{(Sin\,x + Cos\,x)^3} = \frac{1-p}{2} p\pi\, Cosec\, p\pi$ V. T. 16, N. 5.

6) $\int \frac{Tg\,x\,dx}{(Sec\,x - 1)^p} = \pi\, Cosec\, p\pi$ V. T. 3, N. 5.

7) $\int \frac{Sin\,2x\,dx}{(Cosec\,x - 1)^p} = (1+p)p\pi\, Cosec\, p\pi$ V. T. 3, N. 6.

8) $\int \frac{Sin^{p-1}x \,.\, Cos^{q-1}x\,dx}{(Sin\,x + Cos\,x)^{p+q}} = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 16, N. 7.

9) $\int \left[\left(r - i\,Tg\frac{x}{s}\right)^{-a} + \left(r + i\,Tg\frac{x}{s}\right)^{-a}\right] dx = \frac{\pi}{(r+s)^a}$ V. T. 19, N. 18.

10) $\int \left[\left(r - i\,Tg\frac{x}{s}\right)^{-a} - \left(r + i\,Tg\frac{x}{s}\right)^{-a}\right] Tg\frac{x}{s}\, dx = \frac{\pi s i}{(r+s)^a}$ V. T. 19, N. 19.

11) $\int \frac{Sin\,2x \,.\, Cos\,x\,dx}{(1 - Cos^2\lambda \,.\, Sin^2 x)^2} = \frac{\pi - 2\lambda - Sin\,2\lambda}{Sin\,2\lambda \,.\, Cos^2\lambda}$ V. T. 47, N. 8.

12) $\int \frac{(Tg\,x - Cot\,x)^{2q}}{(Tg^2 x + Cot^2 x)^{p+\frac{1}{2}}} Cosec^2\, 2x\,dx = 2^{q-p-2}\, Cos^2\, q\pi \frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ V. T. 21, N. 15.

13) $\int \frac{dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} = \frac{\pi}{4} \frac{p^2 + q^2}{p^3 q^3}$ (VIII, 338).

14) $\int \frac{Sin^2 x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} = \frac{\pi}{4p^3 q}$ (VIII, 565).

15) $\int \frac{Cos^2 x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} = \frac{\pi}{4pq^3}$ (VIII, 338).

16) $\int \frac{Cos\,2x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2} = \frac{\pi}{4} \frac{p^2 - q^2}{p^3 q^3}$ (VIII, 338).

17) $\int \frac{dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^3} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 566).

18) $\int \frac{Sin^2 x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^3} = \frac{\pi}{16} \frac{p^2 + 3q^2}{p^5 q^3}$ (VIII, 566).

19) $\int \frac{Cos^2 x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^3} = \frac{\pi}{16} \frac{3p^2 + q^2}{p^3 q^5}$ (VIII, 566).

20) $\int \frac{Cos\,2x\,dx}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^3} = \frac{3\pi}{16} \frac{p^4 - q^4}{p^5 q^5}$ V. T. 48, N. 18, 19.

21) $\int \frac{dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 566).

22) $\int \frac{Sin^2 x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{p^4 + 2p^2 q^2 + 5q^4}{p^7 q^5}$ (VIII, 566).

23) $\int \frac{Cos^2 x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{5p^4 + 2p^2 q^2 + q^4}{p^5 q^7}$ (VIII, 566).

24) $\int \frac{Sin^4 x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{p^2 + 5q^2}{p^7 q^3}$ (VIII, 566).

25) $\int \frac{Cos^4 x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{5p^2 + q^2}{p^3 q^7}$ (VIII, 566).

26) $\int \frac{Sin^2 x \, . \, Cos^2 x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{p^2 + q^2}{p^5 q^5}$ (VIII, 566).

27) $\int \frac{Cos \, 2x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^4} = \frac{\pi}{32} \, \frac{5p^6 + p^4 q^2 - p^2 q^4 - 5q^6}{p^7 q^7}$ V. T. 48, N. 22, 23.

28) $\int \frac{Sin^{2r-1} x \, . \, Cos^{2s-1} x \, dx}{(p^2 \, Sin^2 x + q^2 \, Cos^2 x)^{r+s}} = \frac{\Gamma(r) \Gamma(s)}{\Gamma(r+s)} \, \frac{1}{2p^{2r} q^{2s}}$ V. T. 17, N. 19.

F. Circ. Dir. rat. fract. à dén. bin. comp. TABLE 49. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Tg^p x}{Sin x + Cos x} \, \frac{dx}{Sin x} = \pi \, Cosec \, p\pi$ V. T. 18, N. 1.

2) $\int \frac{Tg^p x}{Sin x - Cos x} \, \frac{dx}{Sin x} = -\pi \, Cot \, p\pi$ V. T. 18, N. 2.

3) $\int \frac{1}{1 + Cos \lambda \, . \, Sin \, 2x} \, \frac{dx}{Tg^p x} = \frac{\pi}{Sin \, p\pi} \, \frac{Sin \, p\lambda}{Sin \lambda} \, \begin{bmatrix} p^2 < 1, \\ \lambda^2 < \pi^2 \end{bmatrix}$ V. T. 20, N. 3.

4) $\int \frac{Sin^2 x}{p^2 \, Sin^2 x + q^2 \, Cos^2 x} \, \frac{dx}{Cos \, 2x} = \frac{-1}{2p} \, \frac{q\pi}{p^2 + q^2}$ (VIII, 531).

5) $\int \frac{Cos^2 x}{p^2 \, Sin^2 x + q^2 \, Cos^2 x} \, \frac{dx}{Cos \, 2x} = \frac{p}{2q} \, \frac{\pi}{p^2 + q^2}$ (VIII, 531).

6) $\int \frac{1}{1 - q \, Cos^2 x} \, \frac{dx}{Tg^p x} = \frac{1}{\sqrt{1 - q}^{\,p+1}} \, \frac{\pi}{2} \, Sec \, \frac{1}{2} p\pi \, \begin{bmatrix} p^2 < 1, \\ q < 1 \end{bmatrix}$ (VIII, 558).

7) $\int \frac{1}{1 - Cos^2 \lambda \, . \, Sin^2 2x} \, \frac{dx}{Tg^p x} = \frac{\pi}{2 \, Cos \, \frac{1}{2} p\pi} \, \frac{Cos \left\{ p \left(\frac{1}{2}\pi - \lambda \right) \right\}}{Sin \lambda}$ V. T. 49, N. 3.

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8) $\int \frac{Sin\,2x}{1-Cos^2\lambda . Sin^2 2x} \frac{dx}{Tg^p x} = \frac{\pi}{Sin\frac{1}{2}p\pi} \frac{Sin\{p(\frac{1}{2}\pi-\lambda)\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

9) $\int \frac{Sin^2 x}{1-Cos^2\lambda . Sin^2 2x} \frac{dx}{Tg^p x} = \frac{\pi}{2\,Cos\frac{1}{2}p\pi} \frac{Cos\{\frac{1}{2}p\pi-(p-1)\lambda\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

10) $\int \frac{Cos^2 x}{1-Cos^2\lambda . Sin^2 2x} \frac{dx}{Tg^p x} = \frac{\pi}{2\,Cos\frac{1}{2}p\pi} \frac{Cos\{\frac{1}{2}p\pi-(p+1)\lambda\}}{Sin\,2\lambda}$ V. T. 49, N. 3.

11) $\int \frac{Cos\,2x}{1-Cos^2\lambda . Sin^2 2x} \frac{dx}{Tg^p x} = \frac{\pi}{2\,Cos\frac{1}{2}p\pi} \frac{Sin\{p(\frac{1}{2}\pi-\lambda)\}}{Cos\,\lambda}$ V. T. 49, N. 9, 10.

Dans 7) à 11) on a $\lambda^2 < \pi^2$, $p^2 < 1$.

12) $\int \frac{Cos^p x + Sec^p x}{Cos^q x + Sec^q x} Tg\,x\,dx = \frac{\pi}{2q} Sec\frac{p\pi}{2q}$ V. T. 4, N. 14.

13) $\int \frac{Cos^p x - Sec^p x}{Cos^q x - Sec^q x} Tg\,x\,dx = \frac{\pi}{2q} Tg\frac{p\pi}{2q}$ V. T. 4, N. 15.

14) $\int \frac{1}{Sin^p x + Cosec^p x} \frac{dx}{Tg\,x} = \frac{\pi}{4p}$ V. T. 2, N. 12.

15) $\int \frac{Sin^p x + Sin^q x}{Sin^{p+q} x + 1} \frac{dx}{Tg\,x} = \frac{\pi}{p+q} Sec\left(\frac{p-q}{p+q}\frac{\pi}{2}\right)$ V. T. 2, N. 18.

16) $\int \frac{Sin^p x - Sin^q x}{Sin^{p+q} x - 1} \frac{dx}{Tg\,x} = \frac{\pi}{p+q} Tg\left(\frac{p-q}{p+q}\frac{\pi}{2}\right)$ V. T. 2, N. 19.

17) $\int \frac{dx}{(p\,Sin\,x + q\,Cos\,x)(r\,Sin\,x + s\,Cos\,x)} = \frac{1}{ps-qr}\, l\frac{ps}{qr}$ (VIII, 545).

18) $\int \frac{Sin\,x}{Sin^2 x + p^2\,Cos^2 x} \frac{dx}{Sin\,x + q\,Cos\,x} = \frac{1}{p^2+q^2}\left(\frac{1}{2}p\pi + q\,l\frac{q}{p}\right)$ (VIII, 543).

19) $\int \frac{Cos\,x}{Sin^2 x + p^2\,Cos^2 x} \frac{dx}{Sin\,x + q\,Cos\,x} = \frac{1}{p^2+q^2}\left(\frac{q\pi}{2p} + l\frac{p}{q}\right)$ (VIII, 543).

20) $\int \frac{Sin\,x}{Sin^2 x + p^2\,Cos^2 x} \frac{dx}{Sin\,x - q\,Cos\,x} = \frac{1}{p^2+q^2}\left(\frac{1}{2}p\pi + q\,l\frac{p}{q}\right)$ (VIII, 544).

21) $\int \frac{Cos\,x}{Sin^2 x + p^2\,Cos^2 x} \frac{dx}{Sin\,x - q\,Cos\,x} = \frac{1}{p^2+q^2}\left(-\frac{q\pi}{2p} + l\frac{p}{q}\right)$ (VIII, 544).

22) $\int \frac{Sin^2 x}{(1+Cos\,\lambda . Sin\,2x)^2} \frac{dx}{Tg^{p+1} x} = \frac{\pi}{2\,Sin\,p\pi} \frac{p\,Sin\,\lambda . Cos\,p\lambda - Cos\,\lambda . Sin\,p\lambda}{Sin^3\lambda}$ V. T. 20, N. 8.

23) $\int \frac{Tg^{p+1} x}{(1+Tg\,x)^3} \frac{dx}{Sin\,2x} = \frac{1-p}{4} p\pi\,Cosec\,p\pi$ V. T. 16, N. 5.

24) $\int \left(\frac{Tg^p x - Cot^p x}{Cos\,x - Sin\,x}\right)^2 dx = 2(1-2p\pi\,Cot\,2p\pi)$ $\left[p^2 < \frac{1}{4}\right]$ V. T. 21, N. 11.

25) $\int \frac{1}{(Tg^p x + Cot^p x)^q} \frac{dx}{Tg x} = \frac{\sqrt{\pi}}{2^{2q+1} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})} =$ 26) $\int \frac{1}{(Tg^p x + Cot^p x)^q} \frac{dx}{Sin 2x}$ (VIII, 422).

27) $\int \frac{1}{(Cosec x - 1)^p} \frac{dx}{Tg x} = \pi \, Cosec p\pi$ V. T. 3, N. 5.

28) $\int \frac{Cos^{2a} x}{(1 - q Cos^2 x)^{a+1}} \frac{dx}{Tg^p x} = \frac{(p+1)^{a/2}}{2^{a/2}} \frac{\pi \, Sec \frac{1}{2} p\pi}{2(1-q)^{\frac{1}{2}(p+1)+a}} \left[\begin{matrix} p^2 < 1, \\ q^2 < 1 \end{matrix}\right]$ (IV, 118).

29) $\int \frac{(1 + Tg x)^q - 1}{(1 + Tg x)^{p+q}} \frac{dx}{Sin 2x} = \frac{1}{2} \{Z'(p+q) - Z'(p)\}$ V. T. 18, N. 5.

F. Circ. Dir. rat. fract. à dén. trin. et comp. TABLE 50. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^2 x \, dx}{1 - 2q Cos 2x + q^2} = \frac{1}{4} \frac{\pi}{1+q}$ (VIII, 561).

2) $\int \frac{Cos^2 x \, dx}{1 - 2q Cos 2x + q^2} = \frac{1}{4} \frac{\pi}{1-q} [q^2 < 1], = \frac{1}{4} \frac{\pi}{q-1} [q^2 > 1]$ (VIII, 561).

3) $\int \frac{Tang^p x \, . \, Sin 2x \, dx}{1 - 2q Cos 2x + q^2} = \frac{\pi}{4q} Cosec \frac{1}{2} p\pi . \left\{1 - \left(\frac{1-q}{1+q}\right)^p\right\} [q^2 < 1], = \frac{\pi}{4q} Cosec \frac{1}{2} p\pi . \left\{1 + \left(\frac{q-1}{q+1}\right)^p\right\}$
$[q^2 > 1]$ (VIII, 678).

4) $\int \frac{1 - q Cos 2x}{1 - 2q Cos 2x + q^2} Tg^p x \, dx = \frac{1}{4} \pi Sec \frac{1}{2} p\pi . \left\{1 + \left(\frac{1-q}{1+q}\right)^p\right\} [q^2 < 1], = \frac{1}{4} \pi Sec \frac{1}{2} p\pi . \left\{1 - \left(\frac{q-1}{q+1}\right)^p\right\}$
$[q^2 > 1]$ (VIII, 677).

5) $\int \frac{Cos^a x \, . \, Cos a x \, dx}{1 - 2q Cos 2x + q^2} = \frac{\pi}{2(1-q^2)} \left(\frac{1+q}{2}\right)^a$ (VIII, 477)

6) $\int \frac{Cos^a x \, . \, Sin a x \, . \, Sin 2x \, dx}{1 - 2q Cos 2x + q^2} = \frac{\pi}{4q} \left\{\left(\frac{1+q}{2}\right)^a - \frac{1}{2^a}\right\}$ (VIII, 477)

(5 et 6) $[q^2 < 1]$.

7) $\int \frac{1 - q Cos 2ax}{1 - 2q Cos 2ax + q^2} Cos^b x . Cos b x \, dx = \frac{\pi}{2^{b+2}} \sum_1^\infty \binom{b}{na} q^n$ (IV, 138*).

8) $\int \frac{Cos^3 x \, dx}{1 + 2 Cos \lambda . Sin x + Sin^2 x} = Cos \lambda . \, l \{2(1 + Cos \lambda)\} + \lambda Sin \lambda - 1$ V. T. 6, N. 6.

9) $\int \frac{dx}{p + q Sin^2 x + r Cos^2 x} = \frac{\pi}{2\sqrt{(p+q)(p+r)}}$ (VIII, 305).

10) $\int \frac{Sin p x}{1 - 2q Cos 2x + q^2} \frac{Sin x \, dx}{Cos^{p-1} x} = 2^{p-3} \frac{\pi}{q} \{1 - (1+q)^{-p}\} [q^2 < 1], = 2^{p-3} \frac{\pi}{q} \left\{1 - \left(\frac{q}{q+1}\right)^p\right\}$
$[q^2 > 1]$

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11) $\int \frac{1-q\,Cos\,2x}{1-2q\,Cos\,2x+q^2}\,\frac{Cos\,px\,dx}{Cos^p x} = 2^{p-2}\pi\left\{1+(1+q)^{-p}\right\}\,[q^2<1], = 2^{p-2}\pi\left\{1+\left(\frac{q}{q+1}\right)^p\right\}$ $[q^2>1]$

12) $\int \frac{Sin\left\{p\left(\frac{1}{2}\pi-x\right)\right\}}{1-2q\,Cos\,2x+q^2}\,\frac{Cos\,x\,dx}{Sin^{p-1}x} = 2^{p-3}\frac{\pi}{q}\left\{1-(1-q)^{-p}\right\}\,[q^2<1], = 2^{p-3}\frac{\pi}{q}\left\{1-\left(\frac{q}{q-1}\right)^p\right\}$ $[q^2>1]$

13) $\int \frac{Cos\left\{p\left(\frac{1}{2}\pi-x\right)\right\}}{1-2q\,Cos\,2x+q^2}\,\frac{1-q\,Cos\,2x}{Sin^p x}\,dx = 2^{p-2}\pi\left\{1+(1-q)^{-p}\right\}\,[q^2<1], = 2^{p-2}\pi\left\{1+\left(\frac{q}{q-1}\right)^p\right\}$ $[q^2>1]$ Sur 10) à 13) voyez Cauchy, Ann. Math. T. 17, 84.

14) $\int \frac{Sin^p x + Cosec^p x}{Sin^q x + 2\,Cos\,\lambda + Cosec^q x}\,\frac{dx}{Tg\,x} = \frac{\pi}{q}\,Cosec\,\lambda\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\lambda}{q}$ V. T. 6, N. 16.

15) $\int \frac{Sin^p x - 2\,Cos\,\lambda + Cosec^p x}{Sin^q x + 2\,Cos\,\mu + Cosec^q x}\,\frac{dx}{Tg\,x} = \frac{\pi}{q}\,Cosec\,\mu\,.\,Cosec\frac{p\pi}{q}\,.\,Sin\frac{p\mu}{q} - \frac{\mu}{q}\,Cosec\,\mu\,.\,Cos\,\lambda$ V. T. 6, N. 20.

16) $\int \frac{dx}{\left\{1+q\left(1-p\,Sin^2 x\right)\right\}\left(1-p\,Sin^2 x\right)} = \frac{\pi}{2\sqrt{1-p}} - \frac{q\pi}{2\sqrt{(1+q)(1-pq+q)}}$ (IV, 120).

17) $\int \frac{Sin^2 x\,.\,Cos^2 x}{1-2q\,Cos\,2x+q^2}\,\frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{16}\,\frac{1}{1-pq}$ (VIII, 560).

18) $\int \frac{Tg^{2p-1}x\,dx}{1-2r\left(Cos\,\alpha\,.\,Cos^2 x + Cos\,\beta\,.\,Sin^2 x\right)+r^2} = \frac{\pi}{\left(1-2r\,Cos\,\alpha+r^2\right)^{1-p}}\,\frac{Cosec\,p\pi}{\left(1-2r\,Cos\,\beta+r^2\right)^p}$

Enneper, Schl. Z. B. 7, 346.

F. Circ. Dir. rat. fract. comp. à argum. $Tg\,x$. TABLE 51. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin(q\,Tg\,x)\,\frac{dx}{Sin\,2x} = \frac{1}{4}\pi$ V. T. 51, N. 15.

2) $\int Sin(q\,Tg\,x)\,\frac{dx}{Tg\,x} = \frac{1}{2}\pi\left(1-e^{-q}\right)$ V. T. 172, N. 1.

3) $\int Sin(q\,Tg\,x)\,\frac{dx}{Cos\,2x} = Ci(q)\,.\,Sin\,q - Si(q)\,.\,Cos\,q$ V. T. 161, N. 3.

4) $\int Sin(q\,Tg\,x)\,\frac{Tg\,x\,dx}{Cos\,2x} = -\frac{1}{4}\pi\,Cos\,q$ V. T. 161, N. 4.

5) $\int Sin(q\,Tg\,x)\,.\,Cos^{p-2}x\,\frac{dx}{Sin^p x} = \frac{1}{2}\pi\,Cosec\,\frac{1}{2}p\pi\,.\,q^{p-1}\,\Gamma(p)$ Cauchy, Ann. Math. T. 17, 84.

6) $\int Sin(q\,Tg\,x)\,\frac{dx}{Cos 2x . Tg\,x} = \frac{1}{2}\pi(1 - Cos q)$ V. T. 172, N. 4.

7) $\int Sin^2(q\,Tg\,x)\,\frac{dx}{Tg^2 x} = \frac{1}{4}\pi(e^{-2p} + 2p - 1)$ V. T. 172, N. 13.

8) $\int Sin^2(q\,Tg\,x)\,\frac{dx}{Cos 2x . Tg^2 x} = \frac{1}{4}\pi(2q - Sin 2q)$ V. T. 172, N. 14.

9) $\int Cos(q\,Tg\,x)\,\frac{dx}{Cos 2x} = \frac{1}{2}\pi\,Sin q$ V. T. 161, N. 5.

10) $\int Cos(q\,Tg\,x)\,\frac{Tg\,x\,dx}{Cos 2x} = Ci(q) . Cos q + Si(q) . Sin q$ V. T. 161, N. 6.

11) $\int Cos(q\,Tg\,x)\left(\frac{Cos x}{Cos 2x}\right)^2 dx = \frac{1}{4}\pi(Sin q - q\,Cos q)$ V. T. 171, N. 3.

12) $\int Cos(q\,Tg\,x) . Cos^{p-2} x\,\frac{dx}{Sin^p x} = \frac{1}{2}\pi\,Sec\frac{1}{2}p\pi . \Gamma(p)\,q^{p-1}$ Cauchy, Ann. Math. T. 17, 84.

13) $\int Cos^2(q\,Tg\,x)\,\frac{dx}{Cos 2x} = \frac{1}{4}\pi\,Sin 2q$ V. T. 161, N. 10.

14) $\int [1 - Cos^2 x . Cos(Tg\,x)]\,\frac{dx}{Tg\,x} = A$ V. T. 173, N. 21.

15) $\int Sin(a\,Tg\,x + qx)\,\frac{Cos^{q-1} x\,dx}{Sin x} = \frac{1}{2}\pi$ (IV, 121).

F. Circ. Dir. rat. fract. comp. à autre argum. TABLE 52. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Sin(q\,Cot\,x)\,\frac{dx}{Tg\,x} = \frac{1}{2}\pi e^{-q}$ V. T. 160, N. 4.

2) $\int Sin(q\,Cot\,x)\,\frac{Tg\,x\,dx}{Cos 2x} = \frac{1}{2}\pi(Cos q - 1)$ V. T. 172, N. 4.

3) $\int Sin(q\,Cot\,x)\,\frac{dx}{Cos 2x . Tg\,x} = \frac{1}{4}\pi\,Cos q$ V. T. 161, N. 4.

4) $\int Sin^2(q\,Cot\,x)\,\frac{Tg^2 x\,dx}{Cos 2x} = \frac{1}{4}\pi(Sin 2q - 2q)$ V. T. 172, N. 14.

5) $\int Cos(q\,Cot\,x)\,\frac{dx}{Tg\,x} = -\frac{1}{2}\left\{e^{-q} Ei(q) + e^{q} Ei(-q)\right\}$ V. T. 160, N. 6.

6) $\int Cos(q\,Cot\,x)\,\frac{dx}{Cos\,2\,x} = -\frac{1}{2}\pi\,Sin\,q$ V. T. 161, N. 5.

7) $\int Cos(q\,Cot\,x)\,\frac{dx}{Cos\,2\,x.Tg\,x} = -Ci(q).Cos\,q - Si(q).Sin\,q$ V. T. 161, N. 6.

8) $\int Cos(q\,Cot\,x)\left(\frac{Sin\,x}{Cos\,2\,x}\right)^2 dx = \frac{1}{4}\pi\,(Sin\,q - q\,Cos\,q)$ V. T. 171, N. 3.

9) $\int Cos^2(q\,Cot\,x)\,\frac{dx}{Cos\,2\,x} = -\frac{1}{4}\pi\,Sin\,2\,q$ V. T. 161, N. 10.

10) $\int Sin(q\,Sin\,x)\,\frac{dx}{Tg\,x} = Si(p)$ V. T. 149, N. 5.

11) $\int Sin(p\,Cosec\,x).Sin(p\,Cot\,x)\,\frac{dx}{Cos\,x} = \frac{1}{2}\pi\,Sin\,p =$ 12) $\int Sin(p\,Sec\,x).Sin(p\,Tg\,x)\,\frac{dx}{Sin\,x}$ V. T. 149, N. 15.

13) $\int Sin\left(\frac{1}{2}p\pi - q\,Cot\,x\right)\frac{dx}{Tg^{p-1}\,x} = \frac{1}{2}\pi e^{-q} =$ 14) $\int Cos\left(\frac{1}{2}p\,\pi - q\,Cot\,x\right)\frac{dx}{Tg^p\,x}$ V. T. 160, N. 20, 21.

F. Circ. Dir. irr. ent. à un fact. $\sqrt{1-p^2\,Sin^2 x}$. $[p^2<1]$. TABLE 53. Lim. 0 et $\frac{\pi}{2}$.

1) $\int dx\sqrt{1-p^2\,Sin^2 x} = E'(p)$ (IV, 123).

2) $\int Sin\,x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{2}\left\{1 + \frac{1-p^2}{2p}\,l\frac{1+p}{1-p}\right\}$ (VIII, 314).

3) $\int Cos\,x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{2}\sqrt{1-p^2} + \frac{1}{2p}Arcsin\,p$ (M. D. 16, 28).

4) $\int Cos\,2x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{3p^2}\left\{(2-p^2)E'(p) - 2(1-p^2)F'(p)\right\}$ (VIII, 255).

5) $\int Sin^2 x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{3p^2}\left\{(1-p^2)F'(p) - (1-2p^2)E'(p)\right\}$ (VIII, 254).

6) $\int Sin\,x.Cos\,x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{3p^2}\left\{1 - \sqrt{1-p^2}^{\,3}\right\}$ (M. D. 16, 28).

7) $\int Cos^2 x\,dx\sqrt{1-p^2\,Sin^2 x} = \frac{1}{3p^2}\left\{(1+p^2)E'(p) - (1-p^2)F'(p)\right\}$ (VIII, 254).

8) $\int Tg^2 x\,dx\sqrt{1-p^2\,Sin^2 x} = \infty$ (IV, 123).

9) $\int Sin^3 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{3p^2-1+\frac{1-p^2}{2}\,\frac{1+3p^2}{p}\,l\frac{1+p}{1-p}\right\}$ (VIII, 314).

10) $\int Sin^2 x.\,Cos\,x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{\frac{1}{p}\,Arcsin\,p-(1-2p^2)\sqrt{1-p^2}\right\}$.

11) $\int Sin\,x.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{1+p^2-\frac{(1-p^2)^2}{2p}\,l\frac{1+p}{1-p}\right\}$.

12) $\int Cos^3 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{8p^2}\left\{(1+2p^2)\sqrt{1-p^2}-\frac{1-4p^2}{p}\,Arcsin\,p\right\}$.

13) $\int Sin^4 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\{2(1+2p^2)(1-p^2)\mathrm{F}'(p)-(2+3p^2-8p^4)\mathrm{E}'(p)\}$.

14) $\int Sin^3 x.\,Cos\,x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\{2-(2+3p^2)\sqrt{1-p^2}^{\,3}\}$.

15) $\int Sin^2 x.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\{2(1-p^2+p^4)\mathrm{E}'(p)-(2-p^2)(1-p^2)\mathrm{F}'(p)\}$.

16) $\int Sin\,x.\,Cos^3 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\{-2+5p^2+2\sqrt{1-p^2}^{\,5}\}$.

17) $\int Cos^4 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{15p^4}\{2(1-3p^2)(1-p^2)\mathrm{F}'(p)-(2-7p^2-3p^4)\mathrm{E}'(p)\}$.

18) $\int Sin^5 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(5p^2-3)(3p^2+1)+\frac{3}{2p}(1-p^2)(1+2p^2+5p^4)\,l\frac{1+p}{1-p}\right\}$.

19) $\int Sin^4 x.\,Cos\,x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-(3+2p^2-8p^4)\sqrt{1-p^2}+\frac{3}{p}\,Arcsin\,p\right\}$.

20) $\int Sin^3 x.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(3-2p^2+3p^4)-\frac{3}{2p}(1+p^2)(1-p^2)^2\,l\frac{1+p}{1-p}\right\}$.

21) $\int Sin^2 x.\,Cos^3 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{(3+4p^2+4p^4)\sqrt{1-p^2}-\frac{3}{p}(1-2p^2)\,Arcsin\,p\right\}$.

22) $\int Sin\,x.\,Cos^4 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-3+8p^2+3p^4-\frac{3}{2p}(1-p^2)^3\,l\frac{1+p}{1-p}\right\}$.

23) $\int Cos^5 x\,dx\,\sqrt{1-p^2 Sin^2 x} = \frac{1}{48p^4}\left\{-(3+10p^2-8p^4)\sqrt{1-p^2}+\frac{3}{p}(1-4p^2+8p^4)\,Arcsin\,p\right\}$.

24) $\int Sin^6 x\,dx\,\sqrt{1-v^2 Sin^2 x} = \frac{1}{105p^6}\{(8+13p^2+24p^4)(1-p^2)\mathrm{F}'(p)-(8+9p^2+$

$+16p^4-48p^6)\mathrm{E}'(p)\}$.

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25) $\int Sin^5 x . Cos x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{8-(8+12p^2+15p^4)\sqrt{1-p^2}^3\}$.

26) $\int Sin^4 x . Cos^2 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-13p^2+8p^4)(1+p^2)E'(p)-(8-p^2-4p^4)$
$(1-p^2)F'(p)\}$.

27) $\int Sin^3 x . Cos^3 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{105 p^6} \{-4+7p^2+(4+3p^2)\sqrt{1-p^2}^5\}$.

28) $\int Sin^2 x . Cos^4 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-15p^2+3p^4)(1-p^2)F'(p)-(8-19p^2+$
$+9p^4-6p^6)E'(p)\}$.

29) $\int Sin x . Cos^5 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{8-28p^2+35p^4-8\sqrt{1-p^2}^7\}$.

30) $\int Cos^6 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{105 p^6} \{(8-33p^2+58p^4+15p^6)E'(p)-(8-29p^2+45p^4)$
$(1-p^2)F'(p)\}$.

31) $\int Sin^7 x . Cos x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{315 p^8} \{16-(16+24p^2+30p^6+35p^8)\sqrt{1-p^2}^3\}$.

32) $\int Sin^5 x . Cos^3 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{315 p^8} \{-4(2-3p^2)+(8+8p^2+5p^4)\sqrt{1-p^2}^5\}$.

33) $\int Sin^3 x . Cos^5 x dx \sqrt{1-p^2 Sin^2 x} = \frac{2}{315 p^8} \{(8-24p^2+21p^4)-4(2+p^2)\sqrt{1-p^2}^7\}$.

34) $\int Sin x . Cos^7 x dx \sqrt{1-p^2 Sin^2 x} = \frac{1}{315 p^8} \{-16+72p^2-126p^4+105p^6+16\sqrt{1-p^2}^9\}$.

Sur 10) à 34) voyez M. D. 16, 28.

35) $\int Sin^6 x dx \sqrt{1-p^2 Sin^2 2x} = \frac{1}{8p^2} \{(1+2p^2)E'(p)-(1-p^2)F'(p)\}$ V. T. 21, N. 32.

F. Circ. Dir. irrat. ent. Autre forme. $[p^2<1]$. TABLE 54. Lim. 0 et $\frac{\pi}{2}$.

1) $\int dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{3} \{2(2-p^2)E'(p)-(1-p^2)F'(p)\}$ (VIII, 255).

2) $\int Sin x dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{8} \left\{5-3p^2+\frac{3}{2p}(1-p^2)^2 l \frac{1+p}{1-p}\right\}$.

3) $\int Sin^2 x dx \sqrt{1-p^2 Sin^2 x}^3 = \frac{1}{15p^2} \{(3-4p^2)(1-p^2)F'(p)-(3-13p^2+8p^4)E'(p)\}$.

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F. Circ. Dir. irrat. ent. Autre forme. $[p^2<1]$. TABLE 54, suite. Lim. 0 et $\frac{\pi}{2}$.

4) $\int Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{15p^2}\{(3+7p^2-2p^4)E'(p)-(3+p^2)(1-p^2)F'(p)\}$.

5) $\int Sin^3 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{48p^2}\left\{-3+22p^2-15p^4+\frac{3}{2p}(1+5p^2)(1-p^2)^2\,l\frac{1+p}{1-p}\right\}$.

6) $\int Sin\,x\,.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{48p^2}\left\{3-8p^2-3p^4-\frac{3}{2p}(1-p^2)^3\,l\frac{1+p}{1-p}\right\}$.

7) $\int Sin^4 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{35p^4}\{(2+5p^2-8p^4)(1-p^2)F'(p)-2(1+2p^2-$
$-12p^4+8p^6)E'(p)\}$.

8) $\int Sin^2 x\,.\,Cos^2 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{105p^4}\{(6-9p^2+19p^4-8p^6)E'(p)-2(3-3p^2+2p^4)$
$(1-p^2)F'(p)\}$.

9) $\int Cos^4 x\,dx\,\sqrt{1-p^2 Sin^2 x}^{\,3}=\frac{1}{35p^4}\{(2-9p^2-p^4)(1-p^2)F'(p)-2(1-6p^2+p^4)$
$(1+p^2)E'(p)\}$. Sur 2) à 9) voyez M. D. 16, 28.

10) $\int Sin^q x.Cos^{3-q}x.(1-p^2 Sin^2 x)^{1-\frac{1}{2}q}\,dx=\frac{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(2-\frac{q}{2}\right)}{p^3\sqrt{\pi(q-1)(q-3)(q-5)}}\left\{\frac{1+(q-3)p+p^2}{(1+p)^{q-3}}-\right.$
$\left.-\frac{1-(q-3)p+p^2}{(1-p)^{q-3}}\right\}$ V. T. 7, N. 6.

11) $\int dx\,\sqrt[4]{Sin\,x}=\frac{1-\sqrt{3}}{\sqrt[4]{3}}F'\left(Cos\frac{\pi}{12}\right)+2\sqrt[4]{3}\,.\,E'\left(Cos\frac{\pi}{12}\right)$ (VIII, 303).

12) $\int dx\,\sqrt[4]{Sin^2 x}=3\sqrt[4]{3}\,.\,E'\left(Sin\frac{\pi}{12}\right)-3\frac{1+\sqrt{3}}{2\sqrt[4]{3}}F'\left(Sin\frac{\pi}{12}\right)$ (VIII, 303).

F. Circ. Dir. irrat. fract. à dén. monôme. TABLE 55. Lim. 0 et $\frac{\pi}{2}$.

1) $\int\frac{dx}{\sqrt{Sin\,x}}=\sqrt{2}\,.\,F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 298). 2) $\int\frac{dx}{Cos\,2x}\sqrt{Sin^4 x+Cos^4 x}=0$ (VIII, 545).

3) $\int\frac{dx}{Cos^2 x}\sqrt{1-p^2 Sin^2 x}=\infty$ (IV, 125).

4) $\int dx\sqrt{\frac{1-p^2 Sin^2 x}{Sin\,x}}=\frac{2aF'(a)+2bF'(b)}{(a+b)^2}+2\frac{b-a}{(a+b)^2}\{E'(b)-E'(a)\}$ $\left[2a^2=\frac{(1-\sqrt{p})^2}{1+p},\ 2b^2=\frac{(1+\sqrt{p})^2}{1+p}\right]$

V. T. 9, N. 12.

5) $\int \frac{dx}{\sqrt[3]{Sin\, x}} = \frac{1}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right)$ (VIII, 303). 6) $\int \frac{dx}{\sqrt[3]{Sin^2 x}} = \frac{3}{\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ (VIII, 303).

7) $\int dx \sqrt[3]{\frac{Cos\, x}{Tang\, x}} = 2\sqrt[4]{3}.\sqrt[3]{2}.E'\left(Cos \frac{\pi}{12}\right) - \frac{1-\sqrt{3}}{\sqrt[4]{3}} \sqrt[3]{2}.F'\left(Cos \frac{\pi}{12}\right) =$ 8) $\int dx \sqrt[3]{\frac{Sin^2 x}{Cos\, x}}$ (VIII, 423).

9) $\int dx \sqrt[3]{\frac{Cos\, x}{Sin^2 x}} = \frac{\sqrt[3]{4}}{\sqrt[4]{3}} F'\left(Cos \frac{\pi}{12}\right) =$ 10) $\int dx \sqrt[3]{\frac{Tang\, x}{Cos\, x}}$ (VIII, 423).

11) $\int \frac{Cos\, x - Sin\, x}{\sqrt[4]{Cos^3 2x}} dx = 0$ V. T. 21, N. 4.

12) $\int \frac{Sin^{p-\frac{1}{2}} x\, dx}{Cos^{2p-1} x} = \frac{2^{\frac{3}{2}-p}}{2p-1} \frac{\Gamma(p+\frac{1}{2})\Gamma(1-p)}{\sqrt{\pi}} Sin\left(\frac{2p-1}{4}\pi\right)$ $[p<1]$ V. T. 8, N. 24.

13) $\int (Sec\, x - 1)^{p+\frac{1}{2}} Sin\, x\, dx = \frac{2p+1}{2} \pi\, Sec\, p\pi$ V. T. 3, N. 4.

14) $\int (Sec\, x - 1)^{p-\frac{1}{2}} Tg\, x\, dx = \pi\, Sec\, p\pi$ V. T. 3, N. 5.

15) $\int Sin(p\, Tg\, x) \frac{dx}{Cos\, x. \sqrt{Sin\, 2x}} = \frac{1}{2}\sqrt{\frac{\pi}{p}} =$ 16) $\int Cos(p\, Tg\, x) \frac{dx}{Cos\, x. \sqrt{Sin\, 2x}}$ V. T. 177, N. 1, 2.

F. Circ. Dir. irr. fract. à dén. bin. du prem. degré. TABLE 56. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^2 x\, dx}{\sqrt{3 + Cos\, 2x}} = F'\left(Sin \frac{\pi}{4}\right) - E'\left(Sin \frac{\pi}{4}\right)$ V. T. 8, N. 27.

2) $\int \frac{Cos^3 x\, dx}{\sqrt{3 + Cos\, 2x}} = \frac{1}{4}\sqrt{2}$ V. T. 8, N. 1.

3) $\int \frac{Cos^2 x\, dx}{\sqrt{3 - Cos\, 2x}} = F'\left(Sin \frac{\pi}{4}\right) - E'\left(Sin \frac{\pi}{4}\right)$ V. T. 8, N. 27.

4) $\int \frac{Sin^3 x\, dx}{\sqrt{3 - Cos\, 2x}} = \frac{1}{4}\sqrt{2}$ V. T. 8, N. 1.

5) $\int \frac{dx}{\sqrt{q + p\, Cos\, x}} = \frac{2}{\sqrt{p+q}} F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)$ (VIII, 328).

6) $\int \frac{dx}{\sqrt{q - p\, Cos\, x}} = \frac{2}{\sqrt{p+q}} \left\{F'\left(\sqrt{\frac{2p}{p+q}}\right) - F\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 328).

7) $\int \frac{Cos\,x\,dx}{\sqrt{q+p\,Cos\,x}} = \frac{2}{p\sqrt{p+q}} \left\{(p+q)\,\mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right) - q\,\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 328).

8) $\int \frac{Cos\,x\,dx}{\sqrt{q-p\,Cos\,x}} = \frac{2q}{p\sqrt{p+q}} \left\{\mathrm{F}'\left(\sqrt{\frac{2p}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\} - \frac{2}{p}\sqrt{p+q}.\left\{\mathrm{E}'\left(\sqrt{\frac{2p}{p+q}}\right) - \mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}$ (VIII, 329). Dans 5) à 8) on a $q > p > 0$.

9) $\int \frac{Tg^{p-\frac{1}{2}}x\,dx}{(Sin\,x + Cos\,x)^2} = \frac{1-2p}{2}\pi\,Sec\,p\pi$ V. T. 21, N. 1.

10) $\int \frac{Sin\,x\,dx}{(Sec\,x - 1)^{p+\frac{1}{2}}} = \frac{1+2p}{2}\pi\,Sec\,p\pi$ V. T. 3, N. 4.

11) $\int \frac{Tg\,x\,dx}{(Sec\,x - 1)^{p-\frac{1}{2}}} = \pi\,Sec\,p\pi$ V. T. 3, N. 5.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}$ $[p^2 < 1]$. TABLE 57. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \mathrm{F}'(p)$ (IV, 127).

2) $\int \frac{Sin\,x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p}\,l\frac{1+p}{1-p}$ (M, D. 16, 28).

3) $\int \frac{Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p}\,Arcsin\,p$ (M, D. 16, 28).

4) $\int \frac{Cos\,2x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2}\left\{2\,\mathrm{E}'(p) - (2-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 254).

5) $\int \frac{Sin^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2}\left\{\mathrm{F}'(p) - \mathrm{E}'(p)\right\}$ (VIII, 254).

6) $\int \frac{Sin\,x\,.\,Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2}\left\{1 - \sqrt{1-p^2}\right\}$ (M, D. 16, 28).

7) $\int \frac{Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{p^2}\left\{\mathrm{E}'(p) - (1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 254).

8) $\int \frac{Sin^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2}\left\{-1 + \frac{1}{2p}(1+p^2)\,l\frac{1+p}{1-p}\right\}$ (M, D. 16, 28).

9) $\int \frac{Sin^2 x\,.\,Cos\,x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2}\left\{-\sqrt{1-p^2} + \frac{1}{p}\,Arcsin\,p\right\}$ (M, D. 16, 28).

10) $\int \frac{Sin\,x\,.\,Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2}\left\{1 - \frac{1}{2p}(1-p^2)\,l\frac{1+p}{1-p}\right\}$ (M, D. 16, 28).

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11) $\int \frac{Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{2p^2}\left\{\sqrt{1-p^2} - \frac{1}{p}(1-2p^2) Arcsin p\right\}$ (M, D. 16, 28).

12) $\int \frac{Sin^4 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 254).

13) $\int \frac{Sin^3 x . Cos x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{2-(2+p^2)\sqrt{1-p^2}\}$ (M, D. 16, 28).

14) $\int \frac{Sin^2 x . Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{(2-p^2)E'(p) - 2(1-p^2)F'(p)\}$ (VIII, 254).

15) $\int \frac{Sin x . Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{-2+3p^2+2\sqrt{1-p^2}^{\,3}\}$ (M, D. 16, 28).

16) $\int \frac{Cos^4 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{3p^4}\{2(2p^2-1)E'(p) + (2-3p^2)(1-p^2)F'(p)\}$ (VIII, 254).

17) $\int \frac{Sin^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-3(1+p^2) + \frac{1}{2p}(3+2p^2+3p^4)\, l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x . Cos x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-(3+2p^2)\sqrt{1-p^2} + \frac{3}{p} Arcsin p\right\}$.

19) $\int \frac{Sin^3 x . Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{3-p^2 - \frac{1}{2p}(3+p^2)(1-p^2)\, l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x . Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{(3-2p^2)\sqrt{1-p^2} - \frac{1}{p}(3-4p^2) Arcsin p\right\}$.

21) $\int \frac{Sin x . Cos^4 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{5p^2-3+\frac{3}{2p}(1-p^2)^2\, l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{8p^4}\left\{-3(1-2p^2)\sqrt{1-p^2} + \frac{1}{p}(3-8p^2+8p^4) Arcsin p\right\}$.

23) $\int \frac{Sin^6 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8+3p^2+4p^4)F'(p) - (8+7p^2+8p^4)E'(p)\}$.

24) $\int \frac{Sin^5 x . Cos x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{8-(8+4p^2+3p^4)\sqrt{1-p^2}\}$.

25) $\int \frac{Sin^4 x . Cos^2 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8-3p^2-2p^4)E'(p) - (8+p^2)(1-p^2)F'(p)\}$.

26) $\int \frac{Sin^3 x . Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{2}{15p^6}\{-4+5p^2+(4+p^2)\sqrt{1-p^2}^{\,3}\}$.

27) $\int \frac{Sin^2 x . Cos^4 x\, dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1}{15p^6}\{(8-9p^2)(1-p^2)F'(p) - (8-13p^2+3p^4)E'(p)\}$.

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28) $\int \frac{Sin\,x\,.\,Cos^5\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{15p^6}\left\{8-20\,p^2+15\,p^4-8\sqrt{1-p^2}^{\,5}\right\}$.

29) $\int \frac{Cos^6\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{15p^6}\left\{(8-23p^2+23p^4)\,\mathrm{E}'(p)-(8-19p^2+15p^4)(1-p^2)\,\mathrm{F}'(p)\right\}$.

30) $\int \frac{Sin^7\,x\,.\,Cos\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{35p^8}\left\{16-(16+8p^2+6p^4+5p^6)\sqrt{1-p^2}\right\}$.

31) $\int \frac{Sin^5 x\,.\,Cos^3 x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{2}{105p^8}\left\{-4(6-7p^2)+(24+8p^2+3p^4)\sqrt{1-p^2}^{\,3}\right\}$.

32) $\int \frac{Sin^3 x\,.\,Cos^5 x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{2}{105p^8}\left\{24-56p^2+35p^4-4(6+p^2)\sqrt{1-p^2}^{\,5}\right\}$.

33) $\int \frac{Sin\,x\,.\,Cos^7\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{35p^8}\left\{-16+56\,p^2-70\,p^4+35\,p^6+16\sqrt{1-p^2}^{\,7}\right\}$.

Sur N. 17) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}^{\,3}$ $[p^2<1]$. TABLE 58. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{1-p^2}\,\mathrm{E}'(p)$ (VIII, 327). 2) $\int \frac{Sin\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{1-p^2}$ (M, D. 16, 28).

3) $\int \frac{Cos\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{\sqrt{1-p^2}}$ (M, D. 16, 28).

4) $\int \frac{Cos\,2\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{(1-p^2)p^2}\left\{2(1-p^2)\,\mathrm{F}'(p)-(2-p^2)\,\mathrm{E}'(p)\right\}$ V. T. 58, N. 5, 7.

5) $\int \frac{Sin^2\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{(1-p^2)p^2}\left\{\mathrm{E}'(p)-(1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 327).

6) $\int \frac{Sin\,x\,.\,Cos\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{p^2}\left\{-1+\frac{1}{\sqrt{1-p^2}}\right\}$ (M, D. 16, 28).

7) $\int \frac{Cos^2\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{p^2}\left\{\mathrm{F}'(p)-\mathrm{E}'(p)\right\}$ (VIII, 328).

8) $\int \frac{Sin^3\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{(1-p^2)p^2}\left\{1-\frac{1-p^2}{2p}\,l\,\frac{1+p}{1-p}\right\}$.

9) $\int \frac{Sin^2\,x\,.\,Cos\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{(1-p^2)p^2}\left\{\sqrt{1-p^2}-\frac{1}{p}(1-p^2)\,Arcsin\,p\right\}$.

10) $\int \frac{Sin\,x\,.\,Cos^2\,x\,dx}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}} = \frac{1}{p^2}\left\{-1+\frac{1}{2p}\,l\,\frac{1+p}{1-p}\right\}$.

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11) $\int \frac{Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{-\sqrt{1-p^2}+\frac{1}{p} Arcsin p\right\}$.

12) $\int \frac{Sin^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{(1-p^2)p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$.

13) $\int \frac{Sin^3 x \,.\, Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\left\{-2+\frac{2-p^2}{\sqrt{1-p^2}}\right\}$.

14) $\int \frac{Sin^2 x \,.\, Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{(2-p^2)F'(p)-2E'(p)\}$.

15) $\int \frac{Sin x \,.\, Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{2-p^2-2\sqrt{1-p^2}\}$.

16) $\int \frac{Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{p^4}\{(2-p^2)E'(p)-2(1-p^2)F'(p)\}$.

17) $\int \frac{Sin^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2(1-p^2)p^4}\left\{3-p^2-\frac{1}{2p}(3+p^2)(1-p^2)\, l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x \,.\, Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2(1-p^2)p^4}\left\{(3-p^2)\sqrt{1-p^2}-\frac{3}{p}(1-p^2) Arcsin p\right\}$.

19) $\int \frac{Sin^3 x \,.\, Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{-3+\frac{1}{2p}(3-p^2)\, l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x \,.\, Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{-3\sqrt{1-p^2}+\frac{1}{p}(3-2p^2) Arcsin p\right\}$.

21) $\int \frac{Sin x \,.\, Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{3-2p^2-\frac{1}{2p}(1-p^2)\, l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{2p^4}\left\{(3-2p^2)\sqrt{1-p^2}-\frac{1}{p}(3-4p^2) Arcsin p\right\}$.

23) $\int \frac{Sin^6 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3(1-p^2)p^6}\{(8-3p^2-2p^4)E'(p)-(8+p^2)(1-p^2)F'(p)\}$.

24) $\int \frac{Sin^5 x \,.\, Cos x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\left\{-8+\frac{8-4p^2-p^4}{\sqrt{1-p^2}}\right\}$.

25) $\int \frac{Sin^4 x \,.\, Cos^2 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-5p^2)F'(p)-(8-p^2)E'(p)\}$.

26) $\int \frac{Sin^3 x \,.\, Cos^3 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{3p^6}\{4-3p^2-(4-p^2)\sqrt{1-p^2}\}$.

27) $\int \frac{Sin^2 x \,.\, Cos^4 x\,dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-7p^2)E'(p)-(8-3p^2)(1-p^2)F'(p)\}$.

28) $\int \frac{Sin\, x \,.\, Cos^5\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{-8+12p^2-3p^4+8\sqrt{1-p^2}^3\}$.

29) $\int \frac{Cos^6\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{3p^6}\{(8-9p^2)(1-p^2)F'(p)-(8-13p^2+3p^4)E'(p)\}$.

30) $\int \frac{Sin^7\, x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{5p^8}\left\{-16+\frac{16-8p^2-2p^4-p^6}{\sqrt{1-p^2}}\right\}$.

31) $\int \frac{Sin^5\, x \,.\, Cos^3\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{15p^8}\{4(6-5p^2)-(24-8p^2-p^4)\sqrt{1-p^2}\}$.

32) $\int \frac{Sin^3\, x \,.\, Cos^5\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{2}{15p^8}\{-24+40p^2-15p^4+4(6-p^2)\sqrt{1-p^2}^3\}$.

33) $\int \frac{Sin\, x \,.\, Cos^7\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{1}{5p^8}\{16-40p^2+30p^4-5p^6-8\sqrt{1-p^2}^5\}$.

Sur N. 8) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à dén. $\sqrt{1-p^2 Sin^2 x}^5$ $[p^2<1]$. TABLE 59. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2}\{2(2-p^2)E'(p)-(1-p^2)F'(p)\}$ (M, D. 16, 28).

2) $\int \frac{Sin\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{3-p^2}{3(1-p^2)^2}$ (M, D. 16, 28).

3) $\int \frac{Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{3-2p^2}{3\sqrt{1-p^2}^3}$ (M, D. 16, 28).

4) $\int \frac{Cos\, 2x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^2}\{(2+p^2)(1-p^2)F'(p)-2(1-p^2+p^4)E'(p)\}$ V. T. 59, N. 5, 7.

5) $\int \frac{Sin^2\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^2}\{(1+p^2)E'(p)-(1-p^2)F'(p)\}$.

6) $\int \frac{Sin\, x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^2}\left\{-1+\frac{1}{\sqrt{1-p^2}^3}\right\}$.

7) $\int \frac{Cos^2\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^2}\{(1-p^2)F'(p)-(1-2p^2)E'(p)\}$.

8) $\int \frac{Sin^3\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3(1-p^2)^2}$.

9) $\int \frac{Sin^2\, x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3\sqrt{1-p^2}^3}$.

10) $\int \frac{Sin\, x \,.\, Cos^2\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)}$.

11) $\int \frac{Cos^3\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3\sqrt{1-p^2}}$.

12) $\int \frac{Sin^4\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\{(2-3p^2)(1-p^2)F'(p)-2(1-2p^2)E'(p)\}$.

13) $\int \frac{Sin^3 x . Cos x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{2 - \frac{2-3p^2}{\sqrt{1-p^2}^3}\right\}$.

14) $\int \frac{Sin^2 x . Cos^2 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\left\{(2-p^2)\mathrm{E}'(p) - 2(1-p^2)\mathrm{F}'(p)\right\}$.

15) $\int \frac{Sin x . Cos^3 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-2-p^2+\frac{2}{\sqrt{1-p^2}}\right\}$.

16) $\int \frac{Cos^4 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{(2+p^2)\mathrm{F}'(p) - 2(1+p^2)\mathrm{E}'(p)\right\}$.

17) $\int \frac{Sin^5 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\left\{-3+5p^2+\frac{3}{p}(1-p^2)^2\, l\frac{1+p}{1-p}\right\}$.

18) $\int \frac{Sin^4 x . Cos x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^4}\left\{-(3-4p^2)\sqrt{1-p^2}+\frac{3}{p}(1-p^2)^2\, Arcsin p\right\}$.

19) $\int \frac{Sin^3 x . Cos^2 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\left\{3-2p^2-\frac{3}{p}(1-p^2)\, l\frac{1+p}{1-p}\right\}$.

20) $\int \frac{Sin^2 x . Cos^3 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^4}\left\{(3-p^2)\sqrt{1-p^2}-\frac{3}{p}(1-p^2)\, Arcsin p\right\}$.

21) $\int \frac{Sin x . Cos^4 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-3-p^2+\frac{3}{p}\, l\frac{1+p}{1-p}\right\}$.

22) $\int \frac{Cos^5 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^4}\left\{-(3+2p^2)\sqrt{1-p^2}+\frac{3}{p}\, Arcsin p\right\}$.

23) $\int \frac{Sin^6 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)^2 p^6}\left\{(8-9p^2)(1-p^2)\mathrm{F}'(p) - (8-13p^2+3p^4)\mathrm{E}'(p)\right\}$.

24) $\int \frac{Sin^5 x . Cos x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\left\{8 - \frac{8-12p^2+3p^4}{\sqrt{1-p^2}^3}\right\}$.

25) $\int \frac{Sin^4 x . Cos^2 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3(1-p^2)p^6}\left\{(8-7p^2)\mathrm{E}'(p) - (8-3p^2)(1-p^2)\mathrm{F}'(p)\right\}$.

26) $\int \frac{Sin^3 x . Cos^3 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^6}\left\{-4+p^2+\frac{4-3p^2}{\sqrt{1-p^2}}\right\}$.

27) $\int \frac{Sin^2 x . Cos^4 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\left\{(8-5p^2)\mathrm{F}'(p) - (8-p^2)\mathrm{E}'(p)\right\}$.

28) $\int \frac{Sin x . Cos^5 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\left\{8-4p^2-p^4-8\sqrt{1-p^2}\right\}$.

29) $\int \frac{Cos^6 x\, d x}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^6}\left\{(8-3p^2+2p^4)\mathrm{E}'(p) - (8+p^2)(1-p^2)\mathrm{F}'(p)\right\}$.

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30) $\int \frac{Sin^7 x \,.\, Cos\, x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^8}\left\{16 - \frac{16-24p^2+6p^4+p^6}{\sqrt{1-p^2}^3}\right\}$.

31) $\int \frac{Sin^5 x \,.\, Cos^3 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^8}\left\{-4(2-p^2) + \frac{8-8p^2+p^4}{\sqrt{1-p^2}}\right\}$.

32) $\int \frac{Sin^3 x \,.\, Cos^5 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{2}{3p^8}\left\{8-8p^2+p^4-4(2-p^2)\sqrt{1-p^2}\right\}$.

33) $\int \frac{Sin\, x \,.\, Cos^7 x\, dx}{\sqrt{1-p^2 Sin^2 x}^5} = \frac{1}{3p^8}\left\{-16+24p^2-6p^4-p^6+16\sqrt{1-p^2}^3\right\}$.

Sur 5) à 33) voyez M, D. 16, 28.

F. Circ. Dir. irrat. fract. à autre dén. bin. TABLE 60. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{\sqrt{1+Sin^2 x}} = \frac{1}{2}\sqrt{2}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (VIII, 298).

2) $\int \frac{Sin^2 x\, dx}{\sqrt{1+Sin^2 x}} = \sqrt{2}\,.\,\mathrm{E}'\left(Sin\frac{\pi}{4}\right) - \frac{1}{\sqrt{2}}\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ (VIII, 321).

3) $\int \frac{Cos^2 x\, dx}{\sqrt{1+Sin^2 x}} = \sqrt{2}\,.\left\{\mathrm{F}'\left(Sin\frac{\pi}{4}\right) - \mathrm{E}'\left(Sin\frac{\pi}{4}\right)\right\}$ (VIII, 321).

4) $\int \frac{Sin^3 x\, dx}{\sqrt{1+Sin^2 x}} = \frac{1}{2}$ V. T. 8, N. 1.

5) $\int \frac{Sin\, x\, dx}{\sqrt{1+p^2 Sin^2 x}} = \frac{1}{p} Arctg\, p$ V. T. 12, N. 6*.

6) $\int \frac{Sin^3 x\, dx}{\sqrt{1+p^2 Sin^2 x}^3} = \frac{1}{p^2}\left\{Arctg\, p - \frac{p}{1+p^2}\right\}$ V. T. 60, N. 5.

7) $\int dx \sqrt{\frac{1-p^2 Sin^4 x}{1+Sin^2 x}} = \frac{a\mathrm{F}'(a)+b\mathrm{F}'(b)}{(a+b)^2} + \frac{a-b}{(a+b)^2}\left\{\mathrm{E}'(a)-\mathrm{E}'(b)\right\}$ $\left[2a^2 = \frac{(1-\sqrt{p})^2}{1+p},\ 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 9, N. 12.

8) $\int \frac{Sin^6 x\, dx}{\sqrt{1-p^2 Sin^2 2x}} = \frac{3}{8p^2}\left\{\mathrm{E}'(p)-\mathrm{F}'(p)\right\} + \frac{1}{2}\mathrm{F}'(p)$ $[p<1]$ V. T. 21, N. 31.

9) $\int \frac{Cos^2 x\, dx}{\sqrt{1-p^2 Cos^2 2x}} = \frac{1}{2}\mathrm{F}'(p)$ (IV, 141*).

10) $\int \frac{dx}{p\, Sin^2 x + q\, Cos^2 x}\sqrt{1-p\, Sin^2 x - q\, Cos^2 x} = \frac{\pi}{2\sqrt{pq}} + \mathrm{F}'\left(\sqrt{\frac{p-q}{1-q}}\right)\left\{\frac{1-p}{p\sqrt{1-q}} - \frac{1}{\sqrt{pq}}\right.$ $\left.\mathrm{E}\left(\sqrt{\frac{1-p}{1-q}}, Arcsin\left[\sqrt{\frac{q}{p}}\right]\right)\right\} + \frac{1}{\sqrt{pq}}\mathrm{F}\left(\sqrt{\frac{1-p}{1-q}}, Arcsin\left[\sqrt{\frac{q}{p}}\right]\right)\left\{\mathrm{F}'\left(\sqrt{\frac{p-q}{1-q}}\right) - \mathrm{E}'\left(\sqrt{\frac{p-q}{1-q}}\right)\right\}$

$[0<q<p<1]$ (VIII, 308).

1) $\int \frac{1}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x\,.\,Tg^{p+\frac{1}{2}}\,x} = \pi\, Sec\, p\pi$ V. T. 17, N. 10.

2) $\int \frac{Sin^{p-\frac{1}{2}}\,x}{Sin\,x + Cos\,x} \frac{dx}{Cos^{p+\frac{1}{2}}\,x} = \pi\, Sec\, p\pi$ V. T. 17, N. 10.

3) $\int \frac{1}{(Sin\,x + Cos\,x)^2} \frac{dx}{Tg^{p-\frac{1}{2}}\,x} = \frac{1-2p}{2}\pi\, Sec\, p\pi$ V. T. 21, N. 1.

4) $\int \frac{1}{(Cosec\,x - 1)^{p-\frac{1}{2}}} \frac{dx}{Tg\,x} = \pi\, Sec\, p\pi$ V. T. 23, N. 10.

5) $\int \frac{Sin^{q+1}\,x}{(1-p^2\,Sin^2\,x)^{\frac{1}{2}(q+1)}} \frac{dx}{Cos^q\,x} = \frac{(1-p)^{-q}-(1+p)^{-q}}{4pq\sqrt{\pi}}\Gamma\left(\frac{q+2}{2}\right)\Gamma\left(\frac{1-q}{2}\right)$ V. T. 12, N. 32.

6) $\int \frac{Tg^{2q}\,x}{(1+Sec^2\,x)^{p+\frac{1}{2}}} \frac{dx}{Cos^2\,x} = 2^{q-p-1}\frac{\Gamma(q+\frac{1}{2})\Gamma(p-q)}{\Gamma(p+\frac{1}{2})}$ V. T. 23, N. 9.

7) $\int \frac{Sin\,x\,.\,Cos\,x}{1-Sin^2\lambda\,.\,Sin^2 x} \frac{dx}{\sqrt{Cos^2\mu - Sin^2\lambda\,.\,Sin^2 x}} = \frac{1}{Sin^2\lambda . Sin\,\mu}\left\{\frac{\pi}{2} - \mu - Arccos\left(\frac{Sin\,\mu}{Cos\,\lambda}\right)\right\}$ (IV, 130).

8) $\int \frac{Cos^2\,x}{1-Sin^2\lambda\,.\,Sin^2 x} \frac{dx}{\sqrt{Cos^2\mu - Sin^2\lambda\,.\,Sin^2 x}} = Sec\,\mu\,.\,\mathrm{F}'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right) - \frac{Cos\,\lambda}{Sin^2\lambda . Sin\,\mu}\left\{\mathrm{F}'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right)\right.$

$\left.\mathrm{E}\left(\frac{Sin\,\lambda}{Cos\,\mu}, \frac{\pi}{2}-\mu\right) - \mathrm{E}'\left(\frac{Sin\,\lambda}{Cos\,\mu}\right)\mathrm{F}\left(\frac{Sin\,\lambda}{Cos\,\mu}, \frac{\pi}{2}-\mu\right)\right\}$ (IV, 130).

9) $\int \frac{Cos^2\,x}{1+Cot^2\mu\,.\,Sin^2 x} \frac{dx}{\sqrt{1-q^2\,Sin^2\,x}} = \frac{Tg\,\mu}{2\sqrt{Cos^2\,\mu + q^2\,Sin^2\,\mu}}\left[\pi + 2\,\mathrm{F}'(q)\,\mathrm{F}\{\sqrt{1-q^2}, \mu\} - \right.$

$\left. - 2\,\mathrm{F}'(q)\,\mathrm{E}\{\sqrt{1-q^2}, \mu\} - 2\,\mathrm{E}'(q)\,\mathrm{F}\{\sqrt{1-q^2}, \mu\}\right]$ (IV, 130).

10) $\int \frac{Sin\,x\,dx}{\sqrt{(r^2\,Sin^2 x + p^2\,Cos^2 x)(r^2\,Sin^2 x + q^2\,Cos^2 x)}} = \frac{1}{r\sqrt{r^2-p^2}}\mathrm{F}\left(Arccos\frac{p}{r}, \sqrt{\frac{r^2-q^2}{r^2-p^2}}\right)$ $[r > q > p]$

(IV, 130).

11) $\int \frac{dx}{\sqrt{Sin\,x\,.\,(l^2\,Sin\,x + p^2\,Cos\,x)\,(m^2\,Sin\,x + q^2\,Cos\,x)\,(n^2\,Sin\,x + r^2\,Cos\,x)}} = \frac{2\pi}{q\sqrt{r^2\,l^2 - p^2\,n^2}}$

$\mathrm{F}\left\{Arccos\left(\sqrt{\frac{pn}{rl}}\right), \frac{r}{q}\sqrt{\frac{q^2\,l^2 - p^2\,m^2}{r^2\,l^2 - p^2\,n^2}}\right\}$ $\begin{bmatrix} ql > pm, \\ rl > pn \end{bmatrix}$ V. T. 21, N. 17.

12) $\int \frac{dx}{\sqrt{Cos\,x\,.\,(l^2\,Sin\,x + p^2\,Cos\,x)\,(m^2\,Sin\,x + q^2\,Cos\,x)\,(n^2\,Sin\,x + r^2\,Cos\,x)}} = \frac{2\pi}{m\sqrt{p^2\,n^2 - r^2\,l^2}}$

$\mathrm{F}\left\{Arccos\left(\sqrt{\frac{rl}{pn}}\right), \frac{n}{m}\sqrt{\frac{p^2\,m^2 - q^2\,l^2}{p^2\,n^2 - r^2\,l^2}}\right\}$ $\begin{bmatrix} pm > ql, \\ pn > rl \end{bmatrix}$ V. T. 21, N. 17.

13) $\int \frac{dx}{\sqrt{\{1-(Cos^2\alpha - Sin^2\alpha . Cos^2\beta) Sin^2 x\}\{1-(Sin^2\beta - Tg^2\alpha . Cos^2\beta) Sin^2 x\}}} = \frac{Sin\,\beta}{Sin\,\alpha}$

$F'\left\{\sqrt{\left(1-\frac{Sin^2 2\beta}{Sin^2 2\alpha}\right)}\right\}$ (VIII, 426).

F. Circ. Dir. rat. entière monôme. TABLE 62. Lim. 0 et π.

1) $\int Sin\,ax . Sin\,bx\,dx = 0\ [a \gtrless b], = \frac{1}{2}\pi\ [a=b] =$ 2) $\int Cos\,ax . Cos\,bx\,dx$ (VIII, 332).

3) $\int Sin\,px . Sin\,ax\,dx = (-1)^{a-1}\frac{a\,Sin\,p\pi}{a^2-p^2}$ (IV, 131).

4) $\int Cos\,px . Cos\,ax\,dx = (-1)^{a-1}\frac{p\,Sin\,p\pi}{a^2-p^2}$ (IV, 131).

5) $\int Sin\,2ax . Cot\,x\,dx = \pi =$ 6) $\int Sin\{(2a+1)x\}. Cosec\,x\,dx$ Cayley, C. & D. Math. J. V. 6, 136.

7) $\int Sin^q x . Sin\,qx\,dx = \frac{\pi}{2^q} Sin\frac{1}{2}q\pi$ (VIII, 533). 8) $\int Sin^q x . Cos\,qx\,dx = \frac{\pi}{2^q} Cos\frac{1}{2}q\pi$ (VIII, 533).

9) $\int Sin^q x . Sin\,px\,dx = \frac{\pi}{2^q}\frac{Sin\frac{1}{2}p\pi . \Gamma(q+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{q-p}{2}+1\right)}$ (VIII, 533).

10) $\int Sin^q x . Cos\,px\,dx = \frac{\pi}{2^q}\frac{Cos\frac{1}{2}p\pi . \Gamma(q+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{q-p}{2}+1\right)}$ (VIII, 533).

11) $\int Sin^{q-1}x . Cos\left\{p\left(\frac{\pi}{2}-x\right)\right\}dx = 2^{q-1}\frac{\Gamma\left(\frac{q-p}{2}\right)\Gamma\left(\frac{q+p}{2}\right)\Gamma(q)}{\Gamma(q-p)\Gamma(q+p)}$ (IV, 132).

12) $\int Cos\,px . Cos\,rx . Sin\,x\,dx = \frac{1}{2}\left\{\frac{1-(-1)^{1-r-p}}{1-(r+p)^2}+\frac{1-(-1)^{1+p-r}}{1+(r-p)^2}\right\}$.

13) $\int Cos\,px . Cos\,rx . Sin\,qx\,dx = \frac{1}{4}\left\{\frac{1-(-1)^{p+r+q}}{p+r+q}+\frac{1-(-1)^{q-p-r}}{q-p-r}+\frac{1-(-1)^{q+p-r}}{q+p-r}+\right.$

$\left.+\frac{1-(-1)^{q-p+r}}{q-p+r}\right\}$.

14) $\int Cos(p+p_1x) . Cos(q+q_1x) . Sin(r+r_1x)\,dx = \frac{1}{4}\left\{\frac{1}{p_1+q_1+r_1}\left[Cos(p+q+r) - Cos\{(p+q+r)+\right.\right.$

$+(p_1+q_1+r_1)\pi\}\Big]+\frac{1}{r_1-p_1-q_1}\left[Cos(r-p-q) - Cos\{(r-p-q)+(r_1-p_1-q_1)\pi\}\right]+$

$+\frac{1}{p_1-q_1+r_1}\left[Cos(p-q+r) - Cos\{(p-q+r)+(p_1-q_1+r_1)\pi\}\right]+\frac{1}{r_1-p_1+q_1}$

$\left.\left[Cos(r-p+q) - Cos\{r-p+q+(r_1-p_1+q_1)\pi\}\right]\right\}$.

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15) $\int Cos(p+p_1 x).Cos(q+q_1 x).Cos(r+r_1 x)\,dx = -\frac{1}{4}\left\{\frac{1-(-1)^{r_1+p_1-q_1}}{r_1+p_1-q_1} Sin(r+p-q) + \right.$
$+\frac{1-(-1)^{p_1+q_1+r_1}}{p_1+q_1+r_1} Sin(p+q+r) + \frac{1-(-1)^{p_1-q_1-r_1}}{p_1-q_1-r_1} Sin(p-q-r) +$
$\left. +\frac{1-(-1)^{q_1-p_1-r_1}}{q_1-p_1-r_1} Sin(q-p-r)\right\}.$

16) $\int Cos\,p\,x\,.\,Cos\,q\,x\,.\,Cos\,r\,x\,dx = \frac{\pi}{2}A$, où $A = 0,\ 1,\ 2,\ 4,$ selon que le nombre des dénominateurs nuls $p \pm q \pm r$ sera $0,\ 1,\ 2,\ 3$. Sur 12) à 16) voyez Volpicelli, C. R. 54, 223.

F. Circ. Dir. rat. ent. Autre forme. TABLE 63. Lim. 0 et π.

1) $\int (1-2p\,Cos\,x+p^2)^a\,dx = \pi \sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 482).

2) $\int (1-2p\,Cos\,x+p^2)^a\,Cos\,a\,x\,dx = (-1)^a p^a \pi$ (VIII, 483).

3) $\int (1-2p\,Cos\,x+p^2)^a\,Cos\,b\,x\,dx = \pi(-p)^b \frac{a^{b|-1}}{1^{b|1}} \sum_0^a \binom{a}{n} \frac{(a-b)^{n|-1}}{(b+1)^{n|1}} p^{2n}$ (VIII, 482).

4) $\int Cos(q\,Sin\,x)\,dx = \pi \sum_0^\infty \frac{(-q^2)^n}{(2^{n+1|2})^2}$ (IV, 133). 5) $\int Cos(q\,Cos\,x).Sin\,x\,dx = \frac{2}{q} Sin\,q$ (IV, 133).

6) $\int Cos(q\,Cos\,x).Sin^3 x\,dx = \frac{4}{q^3}(Sin\,q - q\,Cos\,q)$ (IV, 133).

7) $\int Sin(q\,Sin\,x).Sin\,2\,a\,x\,dx = 0$ (IV, 133).

8) $\int Sin(q\,Sin\,x).Sin\{(2a+1)x\}\,dx = \left(\frac{q}{2}\right)^{2a+1} \frac{\pi}{1^{2a+1|1}}\left\{1+\sum_1^\infty (-1)^n \frac{(\frac{1}{2}q)^{2n}}{1^{n|1}(2a+2)^{n|1}}\right\}$ (IV, 133).

9) $\int Cos(q\,Sin\,x).Cos\,2\,a\,x\,dx = \left(\frac{q}{2}\right)^{2a} \frac{\pi}{1^{2a|1}}\left\{1+\sum_1^\infty (-1)^n \frac{(\frac{1}{2}q)^{2n}}{1^{n|1}(2a+1)^{n|1}}\right\}$ (IV, 133).

10) $\int Cos(q\,Sin\,x).Cos\{(2a+1)x\}\,dx = 0$ (IV, 133).

11) $\int Cos\{a(x-q\,Sin\,x)\}\,dx = \frac{\pi}{1^{a|1}}\left(\frac{aq}{2}\right)^a \sum_0^\infty (-1)^n \frac{(\frac{1}{2}aq)^{2n}}{1^{n|1}(1+a)^{n|1}}$ (IV, 134).

12) $\int (1-q\,Cos\,x)^2\,Cos\{a(x-q\,Sin\,x)\}\,dx = \frac{-\pi}{a\,.\,1^{a|1}}\left(\frac{aq}{2}\right)^a \sum_0^\infty (-1)^n \left(\frac{1}{2}aq\right)^{2n} \frac{a+2n}{1^{n|1}a^{n+1|1}}$
(IV, 134).

1) $\int \frac{Sin\, 2\, a\, x\, d\, x}{Sin\, x} = 0.$

2) $\int \frac{Sin\, \{(2\, a + 1)\, x\}\, d\, x}{Sin\, x} = \pi.$

3) $\int \frac{Sin\, a\, x\, .\, Cos\, b\, x\, d\, x}{Sin\, x} = 0\ [a < b],\ = \pi\ [a > b].$

4) $\int \frac{Sin\, 2\, a\, x\, .\, Cos\{(2\, a - 2\, b + 1)\, x\}\, d\, x}{Sin\, x} = \pi =$ 5) $\int \frac{Sin\{(2\, a + 1)\, x\}.\, Cos\{(2\, a - 2\, b + 1)\, x\}\, d\, x}{Sin\, x}.$

6) $\int \frac{Sin\, 2\, a\, x\, .\, Cos\{(2\, a - 2\, b)\, x\}\, d\, x}{Sin\, x} = 0 =$ 7) $\int \frac{Sin\, \{(2\, a + 1)\, x\}.\, Cos\, \{(2\, a - 2\, b)\, x\}\, d\, x}{Sin\, x}.$

8) $\int \frac{Cos\, a\, x\, .\, Sin\{(a + 2\, b)\, x\}\, d\, x}{Sin\, x} = 0.$

9) $\int \frac{Cos\, a\, x\, .\, Sin\, \{(a + 2\, b - 1)\, x\}\, d\, x}{Sin\, x} = \pi.$

10) $\int \frac{Cos\, a\, x\, .\, Sin\{(a - b)\, x\}\, d\, x}{Sin\, x} = 0 =$ 11) $\int \frac{Cos\, a\, x\, .\, Cos\{(a + b)\, x\}\, d\, x}{Sin\, x}.$

Sur 1) à 11) voyez Vernier, Ann. Math. T. 15, 165.

12) $\int \frac{Cos\, a\, x\, d\, x}{1 + p\, Cos\, x} = \frac{\pi}{\sqrt{1 - p^2}} \left\{ \frac{\sqrt{1 - p^2} - 1}{p} \right\}^a$ (IV, 135).

13) $\int \frac{Sin^a\, x\, d\, x}{p + q\, Cos\, x} = \frac{2\, \sqrt{\pi}}{a\, (p^2 - q^2)^{\frac{a+1}{2}}}\, \frac{\Gamma\left(\frac{a+1}{2}\right)}{\Gamma\left(\frac{a}{2}\right)}$ (IV, 135).

14) $\int \frac{d\, x}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a/2}}{1^{a/1}}\, \frac{\pi}{\sqrt{p^2 - q^2}} \sum_0^\infty \left(-\frac{1}{2}\right)^n \frac{(n + 1)^{n/1}}{(2\, a - 1)^{n/-2}} \binom{a}{2\, n} \frac{p^{a - 2\, n}}{(p^2 - q^2)^{a - n}}$ (VIII, 571).

15) $\int \frac{Sin^a\, x\, d\, x}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a-1/1}}{2^{a-2}\, (p^2 - q^2)^{\frac{a+1}{2}} \left\{\Gamma\left(\frac{a}{2}\right)\right\}^2}\, \frac{\pi}{a}$ (IV, 135).

16) $\int \frac{Cos^a\, x\, d\, x}{(p + q\, Cos\, x)^{a+1}} = \frac{1^{a/2}}{1^{a/1}}\, \frac{(-1)^a\, \pi}{\sqrt{p^2 - q^2}} \sum_0^\infty \frac{(n + 1)^{n/1}}{(2\, a - 1)^{n/-2}} \binom{a}{2\, n} \frac{1}{2^n}\, \frac{q^{a - 2\, n}}{(p^2 - q^2)^{a - n}}$ (VIII, 571).

Dans 13) à 16) on a $p > q$.

17) $\int \frac{Sin^{2\, a - 1}\, x\, d\, x}{(p + q\, i\, Cos\, x)^{2\, a + 1}} = \frac{1^{a-1/1}\, \sqrt{\pi}}{(p^2 + q^2)^{a+1}}$ Cauchy, C. R. 1848, 356.

18) $\int \frac{Sin\, x\, d\, x}{p^2 + q^2\, Cos^2\, x} = \frac{2}{p\, q}\, Arctg\, \frac{q}{p}$ (VIII, 543).

19) $\int \frac{Sin\, \{a\, (x - q\, Sin\, x)\}}{(1 - q\, Cos\, x)^2}\, Sin\, x\, d\, x = \frac{\pi}{2}\, \frac{a^2}{1^{a/1}} \left(\frac{a\, q}{2}\right)^{a-1} \sum_0^\infty \left(\frac{a\, q}{2}\right)^{2\, n} \frac{(-1)^n}{1^{n/1}\, (1 + a)^{n/1}}$ (IV, 134).

20) $\int \frac{Cos\, \{a\, (x - q\, Sin\, x)\}}{(1 - q\, Cos\, x)^2}\, (q - Cos\, x)\, d\, x = \frac{\pi\, a^2}{1^{a/1}} \left(\frac{a\, q}{2}\right)^{a-1} \sum_0^\infty \left(\frac{a\, q}{2}\right)^{2\, n} (-1)^n\, \frac{a + 2\, n}{1^{n/1}\, a^{n+1/1}}$ (IV, 134).

1) $\int \frac{dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\,[p^2<1], = \frac{\pi}{p^2-1}\,[p^2>1]$ (VIII, 207).

2) $\int \frac{Cos\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{p\pi}{1-p^2}\,[p^2<1], = \frac{\pi}{p(p^2-1)}\,[p^2>1]$ (VIII, 207).

3) $\int \frac{Cos\,ax\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi p^a}{1-p^2}\,[p^2<1], = \frac{\pi p^{-a}}{p^2-1}\,[p^2>1]$ (VIII, 276).

4) $\int \frac{Sin\,ax\,.\,Sin\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{1}{2}\pi p^{a-1}\,[p^2<1], = \frac{\pi}{2}\,\frac{1}{p^{a+1}}\,[p^2>1]$ (VIII, 276).

5) $\int \frac{Cos\,ax\,.\,Cos\,x\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2}\,\frac{1+p^2}{1-p^2}\,p^{a-1}\,[p^2<1], = \frac{\pi}{2p^{a+1}}\,\frac{p^2+1}{p^2-1}\,[p^2>1]$ (VIII, 276).

6) $\int \frac{Sin\,2ax\,.\,Sin\,x\,dx}{1-2p\,Cos\,2x+p^2} = 0 =$ 7) $\int \frac{Sin\,\{(2a-1)x\}\,.\,Sin\,2x\,dx}{1-2p\,Cos\,2x+p^2}$ (IV, 137, 138) $[p^2 \lesseqgtr 1]$.

8) $\int \frac{Sin\{(2a-1)x\}.\,Sin\,x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2}\,\frac{p^{a-1}}{1+p}\,[p^2<1], = \frac{\pi}{2p^a}\,\frac{1}{1+p}\,[p^2>1]$ (IV, 137).

9) $\int \frac{Cos\,\{(2a-1)x\}\,dx}{1-2p\,Cos\,2x+p^2} = 0 =$ 10) $\int \frac{Cos\,2ax\,.\,Cos\,x\,dx}{1-2p\,Cos\,2x+p^2}$ (IV, 138) $[p^2 \lesseqgtr 1]$.

11) $\int \frac{Cos\{(2a-1)x\}.\,Cos\,x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2}\,\frac{p^{a-1}}{1-p}\,[p^2<1], = \frac{\pi}{2p^a}\,\frac{1}{p-1}\,[p^2>1]$ (IV, 138).

12) $\int \frac{Cos\{(2a-1)x\}.\,Cos\,2x\,dx}{1-2p\,Cos\,2x+p^2} = 0\,[p^2 \lesseqgtr 1]$ (IV, 138).

13) $\int \frac{Sin\,ax - p\,Sin\,\{(a-1)x\}}{1-2p\,Cos\,x+p^2}\,Sin\,bx\,dx = \frac{\pi}{2}(p^{b-a}-1) =$ 14) $\int \frac{Cos\,ax - p\,Cos\,\{(a-1)x\}}{1-2p\,Cos\,x+p^2}\,Cos\,bx\,dx$ (VIII, 276*).

15) $\int \frac{Cos^s\,rx\,.\,Cos^{s_1}\,r_1x\ldots Cos\,\{(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\left(\frac{1+p^{2r}}{2}\right)^s\left(\frac{1+p^{2r_1}}{2}\right)^{s_1}\ldots$

16) $\int \frac{Cos^s\,rx\,.\,Cos^{s_1}\,r_1x\ldots Sin\,\{(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2p}\left(\frac{1+p^{2r}}{2}\right)^s\left(\frac{1+p^{2r_1}}{2}\right)^{s_1}\ldots - \frac{\pi}{2^{s+s_1+\ldots+1}p}$.

17) $\int \frac{Sin^s\,rx\,.\,Sin^{s_1}\,r_1x\ldots Cos\,\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{1-p^2}\left(\frac{1-p^{2r}}{2}\right)^s\left(\frac{1-p^{2r_1}}{2}\right)^{s_1}\ldots$

18) $\int \frac{Sin^s\,rx\,.\,Sin^{s_1}\,r_1x\ldots Sin\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\}\,dx}{1-2p\,Cos\,x+p^2} = \frac{\pi}{2^{s+s_1+\ldots+1}p} - \frac{\pi}{2p}\left(\frac{1-p^{2r}}{2}\right)^s\left(\frac{1-p^{2r_1}}{2}\right)^{s_1}\ldots$

19) $$\int \frac{Cos^s rx.Cos^{s_1} r_1 x...Sin^t ux.Sin^{t_1} u_1 x...Cos\{(t+t_1+...)\frac{1}{2}\pi-(sr+s_1r_1+..+tu+t_1u_1+...)x\}dx}{1-2p\,Cos\,x+p^2}=$$

$$=\frac{\pi}{1-p^2}\left(\frac{1+p^{2r}}{2}\right)^s\left(\frac{1+p^{2r_1}}{2}\right)^{s_1}...\left(\frac{1-p^{2u}}{2}\right)^t\left(\frac{1-p^{2u_1}}{2}\right)^{t_1}...$$

20) $$\int \frac{Cos^s rx.Cos^{s_1} r_1 x...Sin^t ux.Sin^{t_1} u_1 x...Sin\{(t+t_1+...)\frac{1}{2}\pi-(sr+s_1r_1+..+tu+t_1u_1+...)x\}dx}{1-2p\,Cos\,x+p^2}=$$

$$=\frac{\pi}{2^{s+s_1+...+t+t_1+...+1}p}-\frac{\pi}{2p}\left(\frac{1+p^{2r}}{2}\right)^s\left(\frac{1+p^{2r_1}}{2}\right)^{s_1}...\left(\frac{1-p^{2u}}{2}\right)^t\left(\frac{1-p^{2u_1}}{2}\right)^{t_1}...$$

Sur 15) à 20) voyez Svanberg, N. A. Upsal. T. 10, 231.

21) $$\int \frac{Cos\,x\,.\,Sin\,2\,a\,x\,dx}{1+(p+q\,Sin\,x)^2}=-\frac{\pi}{q}Sin\left\{2\,a\,Arctg\left(\sqrt{\frac{s}{2}}\right)\right\}.Tg^{2a}\left\{\frac{1}{2}Arccos\left(\sqrt{\frac{s}{2p^2}}\right)\right\}$$

22) $$\int \frac{Cos\,x\,.\,Cos\{(2a+1)x\}dx}{1+(p+q\,Sin\,x)^2}=\frac{\pi}{q}Cos\left\{(2a+1)\,Arctg\left(\sqrt{\frac{s}{2}}\right)\right\}.Tg^{2a+1}\left\{\frac{1}{2}Arccos\left(\sqrt{\frac{s}{2p^2}}\right)\right\}$$

Dans 21) et 22) on a $s=-(1+q^2-p^2)+\sqrt{\{(1+q^2-p^2)^2+4p^2\}}$ (IV, 138).

F. Circ. Dir. rat. fract. à dén. trin. comp. TABLE 66. Lim. 0 et π.

1) $$\int \frac{1}{1-2p\,Cos\,x+p^2}\,\frac{dx}{Cos\,x}=\infty\ [p^2 \lesseqgtr 1]\ \text{(VIII, 562).}$$

2) $$\int \frac{dx}{(1-2p\,Cos\,x+p^2)^{a+1}}=\frac{\pi}{(1-p^2)^{2a+1}}\sum_0^a\binom{a}{n}^2p^{2n}\ [p^2<1],=\frac{\pi}{(p^2-1)^{2a+1}}\sum_0^a\binom{a}{n}^2p^{2n}\ [p^2>1]\ \text{(VIII, 482).}$$

3) $$\int \frac{Cos\,a\,x\,dx}{(1-2p\,Cos\,x+p^2)^{a+1}}=\frac{\pi p^a}{(1-p^2)^{2a+1}}\,\frac{(a+1)^{a/1}}{1^{a/1}}\,[p^2<1],=\frac{\pi p^a}{(p^2-1)^{2a+1}}\,\frac{(a+1)^{a/1}}{1^{a/1}}\ [p^2>1]\ \text{(VIII, 483).}$$

4) $$\int \frac{Sin^{2a}x\,dx}{(1-2p\,Cos\,x+p^2)^a}=\frac{1^{a/2}}{2^{a/2}}\pi\ [p^2<1],=\frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{p^a}\ [p^2>1]\ \text{(VIII, 432).}$$

5) $$\int \frac{Cos\,b\,x\,dx}{(1-2p\,Cos\,x+p^2)^{a+1}}=\frac{\pi p^b}{(1-p^2)^{2a+1}}\,\frac{(a+1)^{b/1}}{1^{b/1}}\sum_0^a\binom{a}{n}\frac{(a-b)^{n/-1}}{(b+1)^{n/1}}p^{2n}\ [p^2<1],=$$

$$=\frac{\pi p^{-b}}{(p^2-1)^{2a+1}}\,\frac{(a+1)^{b/1}}{1^{b/1}}\sum_0^a\binom{a}{n}\frac{(a-b)^{n/-1}}{(b+1)^{n/1}}p^{2(a-n)}\ [p^2>1]\ \text{(VIII, 483).}$$

6) $$\int \frac{1}{1-2p\,Cos\,x+p^2}\,\frac{dx}{1-2q\,Cos\,x+q^2}=\frac{\pi}{(1-p^2)(1-q^2)}\,\frac{1+pq}{1-pq}\begin{bmatrix}p^2<1,\\q^2<1\end{bmatrix},=\frac{\pi}{(p^2-1)(q^2-1)}\,\frac{pq+1}{pq-1}\begin{bmatrix}p^2>1,\\q^2>1\end{bmatrix}\ \text{(VIII, 559).}$$

7) $\int \frac{Sin^2 x}{1-2p\,Cos\,x+p^2}\,\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{\pi}{2}\,\frac{1}{1-pq}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], = \frac{\pi}{2pq}\,\frac{1}{pq-1}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 559).

8) $\int \frac{Cos^2 x}{1-2p\,Cos\,x+p^2}\,\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{\pi}{2}\,\frac{1+2pq+p^2+q^2-p^2q^2}{(1-pq)(1-p^2)(1-q^2)}\left[\begin{matrix}p^2<1,\\ q^2<1\end{matrix}\right], =$

$= \frac{\pi}{2pq}\,\frac{-1+2pq+p^2+q^2+p^2q^2}{(pq-1)(p^2-1)(q^2-1)}\left[\begin{matrix}p^2>1,\\ q^2>1\end{matrix}\right]$ (VIII, 559).

9) $\int \frac{Sin\,x}{p^2-2pq\,Cos\,x+q^2}\,\frac{Sin\,rx\,dx}{1-2p^r\,Cos\,rx+p^{2r}} = \frac{\pi}{2p^{r+1}}\,\frac{q^{r-1}}{1-q^r}$ (VIII, 635).

10) $\int \frac{p-q\,Cos\,x}{p^2-2pq\,Cos\,x+q^2}\,\frac{1-p^r\,Cos\,rx}{1-2p^r\,Cos\,rx+p^{2r}}\,dx = \frac{\pi}{2p}\,\frac{2-q^r}{1-q^r}$ (VIII, 635).

11) $\int \frac{Cos\,ax\,dx}{(1-2p_1\,Cos\,x+p_1^{\,2})^{l_1}(1-2p_2\,Cos\,x+p_2^{\,2})^{l_2}\ldots(h\,\text{fact.})} = \frac{\pi}{\Gamma(l_1)\Gamma(l_2)\ldots}\,\frac{d^{l_1-1}}{d\eta_1^{\,l_1-1}}\,\frac{d^{l_2-1}}{d\eta_2^{\,l_2-1}}\cdots$

$\cdots\frac{\eta_1^{\,l_1-1}\,\eta_2^{\,l_2-2}\ldots}{(1-\eta_1)^{l_1}(1-\eta_2)^{l_2}\ldots}\left\{Y_1\left(\frac{\eta_1}{p_1}\right)^{h+a-1}+Y_2\left(\frac{\eta_2}{p_2}\right)^{h+a-1}+\ldots\right\}$

$\Bigg[$où $Y_n = \frac{\left(1-\frac{\eta_1}{p_1}\right)^2\left(1-\frac{\eta_2}{p_2}\right)^2\cdots\left(1-\frac{\eta_h}{p_h}\right)^2}{\left(1-\frac{\eta_n}{p_n}\right)^2\times\left(\frac{\eta_n}{p_n}-\frac{\eta_1}{p_1}\right)\left(\frac{\eta_n}{p_n}-\frac{\eta_2}{p_2}\right)\cdots\left(\frac{\eta_n}{p_n}-\frac{\eta_h}{p_h}\right)}$; après

la différentiation changez $\eta_1, \eta_2 \ldots \eta_h$ en $p_1^{\,2}, p_2^{\,2}, \ldots p_h^{\,2}\Bigg]$ (IV, 141).

1) $\int \frac{dx}{\sqrt{3\pm Cos\,x}} = F'\left(Sin\,\frac{\pi}{4}\right)$ V. T. 9, N. 8.

2) $\int \frac{Sin^{2a} x\,dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{1^{a/2}}{2^{a/2}}\,\pi\sum_1^\infty \frac{1^{n/2}(2a+1)^{n/2}}{2^{n/2}(2a+2)^{n/2}}\,p^{2n}\,[p^2<1], = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi}{\sqrt{1-p^2}}\sum_0^\infty \frac{(1^{n/2})^2}{2^{n/2}(2a+2)^{n/2}}$

$\left(\frac{p^2}{p^2-1}\right)^n\left[p^2<\frac{1}{2}\right]$ (IV, 142).

3) $\int \frac{dx}{\sqrt{p^2-q^2\,Cos\,x}^{\,3}} = \frac{2}{\sqrt{p^2+q^2}}\,\frac{1}{p^2-q^2}\,E'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right)$ (IV, 142).

4) $\int \frac{Cos\,x\,dx}{\sqrt{p^2-q^2\,Cos\,x}^{\,3}} = \frac{-2}{q^2\sqrt{p^2+q^2}}\,F'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right) - \frac{p^2\sqrt{2}}{q(p^4-q^4)}\,E'\left(\frac{q\sqrt{2}}{\sqrt{p^2+q^2}}\right)$ (IV, 142).

5) $\int \frac{dx}{\sqrt{1\pm 2p\,Cos\,x+p^2}} = 2F'(p)\ [p<1]$ (VIII, 315).

6) $\int \frac{Sin\, x\, dx}{\sqrt{1-2p\,Cos\,x+p^2}} = 2\,[p^2 \leqq 1],\ = \frac{2}{p}\,[p^2 \geqq 1]$ (VIII, 211).

7) $\int \frac{Cos\, x\, dx}{\sqrt{1-2p\,Cos\,x+p^2}} = \frac{2}{p}\,\{F'(p) - E'(p)\}\ [p<1]$ (VIII, 431).

8) $\int \frac{Sin^2 x\, dx}{\sqrt{1 \pm 2p\,Cos\,x+p^2}^3} = \frac{2}{p^2}\,\{F'(p) - E'(p)\}\ [p<1]$ (VIII, 315).

9) $\int \frac{Cos\, ax\, dx}{\sqrt{1-2p\,Cos\,x+p^2}} = \frac{1^{a/2}}{2^{a/2}}\,\pi p^a \sum_1^\infty \frac{1^{n/2}}{2^{n/2}}\,\frac{(2a+1)^{n/2}}{(2a+2)^{n/2}}\,p^{2n}\ [p^2<1],\ = \frac{1^{a/2}}{2^{a/2}}\,\frac{\pi p^a}{\sqrt{1-p^2}}$
$\sum_0^\infty \frac{(1^{n/2})^2}{2^{n/2}\,(2a+2)^{n/2}}\left(\frac{p^2}{p^2-1}\right)^n \left[p^2<\frac{1}{2}\right]$ (IV, 141).

10) $\int \frac{Sin\, x\, dx}{\sqrt{1-2p\,Cos\,x+p^2}^3} = \frac{2}{1-p^2}\,[p^2<1],\ = \frac{2}{p(p^2-1)}\,[p^2>1],\ = \infty\,[p^2=1]$ (VIII, 211).

11) $\int \frac{Sin\, x\,.\,Cos\, x\, dx}{\sqrt{1-2p\,Cos\,x+p^2}^3} = \frac{2p}{1-p^2}\,[p^2<1],\ = \frac{2}{p^2(p^2-1)}\,[p^2>1],\ = \infty\,[p^2=1]$ (VIII, 212*).

F. Circulaire Directe. TABLE 68. Lim. 0 et 2π.

1) $\int Cos\,\{ax - p\,Cos\,x - q\,Sin\,x\}\,dx = 2\pi\,Cos\left(a\,Arctg\,\frac{q}{p}\right)\frac{(p^2+q^2)^{\frac{1}{2}a}}{2^a\,1^{a/1}}\left\{1 + \sum_1^\infty \frac{(-1)^n}{1^{n/1}\,(1+a)^{n/1}}\right.$
$\left.\left(\frac{p^2+q^2}{4}\right)^n\right\}$ (IV, 143).

2) $\int Cos\{a(x - q\,Sin\,x)\}.Cos\,x\,dx = \frac{2\pi}{q}\,\frac{(\frac{1}{2}aq)^a}{1^{a/1}}\left\{1 + \sum_1^\infty (-1)^n\,\frac{(\frac{1}{2}aq)^{2n}}{1^{n/1}\,(1+a)^{n/1}}\right\}$ (IV, 143).

3) $\int Sin\,\{p\,Cos\,x + q\,Sin\,x\}\,.\,Sin\,2ax\,dx = 0 =$ 4) $\int Cos\,\{p\,Cos\,x + q\,Sin\,x\}\,.\,Cos\,\{(2a+1)x\}\,dx$
(IV, 143).

5) $\int Sin\{p\,Cos\,x + q\,Sin\,x\}.\,Sin\,\{(2a-1)x\}\,dx = 2\pi\,Cos\left\{(2a-1)Arctg\,\frac{q}{p}\right\}\frac{\sqrt{p^2+q^2}^{\,2a-1}}{2^{2a-1}\,1^{2a-1/1}}$
$\left\{1 + \sum_1^\infty (-1)^n\,\frac{(p^2+q^2)^n}{2^{2n}\,1^{n/1}\,(2a)^{n/1}}\right\}$ (IV, 143).

6) $\int Cos\,\{p\,Cos\,x + q\,Sin\,x\}\,.\,Cos\,2ax\,dx = 2\pi\,Cos\left(2a\,Arctg\,\frac{q}{p}\right)\frac{(p^2+q^2)^a}{2^{2a}\,1^{2a/1}}\left\{1 + \sum_1^\infty (-1)^n\right.$
$\left.\frac{(p^2+q^2)^n}{2^{2n}\,1^{n/1}\,(2a+1)^{n/1}}\right\}$ (IV, 143).

7) $\int Cos\,(p\,Sin\,x).Cos^{2a}x\,dx = \frac{1^{a/2}\,\pi}{2^{a-1}\,1^{a/1}}\left\{1 + \sum_1^\infty \frac{(-1)^n}{1^{n/1}\,(a+1)^{n/1}}\left(\frac{p}{2}\right)^{2n}\right\}$ (IV, 143).

8) $\int (p\,Sin\,x + q\,Cos\,x)^{2a}\,dx = \frac{1^{a/2}}{2^{a/2}}\,2\pi(p^2+q^2)^a$ (VIII, 429).

9) $\int (p Sin x + q Cos x)^{2a+1} dx = 0$ (VIII, 429) $=$ 10) $\int (1-Cos x)^a Sin\,a x\,dx$ (C. Math. J. V. 3, 144).

11) $\int (1-Cos\,x)^a\,Cos\,a x\,dx = (-1)^a\,\frac{\pi}{2^{a-1}}$ (C. Math. Journ. V. 3, 144).

12) $\int \frac{p - Cos\,(x-\lambda)\,.\,\sqrt{p^2-1}}{\{q - Cos\,x\,.\,\sqrt{q^2-1}\}^2}\,dx = 2\pi\,\{p q - Cos\,\lambda\,.\,\sqrt{(p^2-1)(q^2-1)}\}$ (VIII, 314).

13) $\int \frac{Sin\,a x - p\,Sin\,\{(a+1)x\}}{1-2p\,Cos\,x+p^2}\,dx = 0$ $[p^2<1]$ (VIII, 483).

14) $\int \frac{Cos\,a x - p\,Cos\,\{(a+1)x\}}{1-2p\,Cos\,x+p^2}\,dx = 2\pi p^a$ $[p^2<1]$ (VIII, 483).

15) $\int \frac{dx}{1-(p+qi)\,Cos\,x-(r+si)\,Sin\,x} = 0\,[(ps-qr)^2>q^2+s^2], = \frac{2\pi}{\sqrt{1-bc}}\,[(ps-qr)^2<q^2+s^2]$ (VIII, 481*).

16) $\int \frac{Sin\,x\,dx}{1-(p+qi)\,Cos\,x-(r+si)\,Sin\,x} = \frac{2\pi i}{b}\,[(ps-qr)^2>q^2+s^2], = \frac{\pi i}{\sqrt{1-bc}}\;\frac{b-c}{1+\sqrt{1-bc}}$ $[(ps-qr)^2<q^2+s^2]$ (VIII, 481).

17) $\int \frac{Cos\,x\,dx}{1-(p+qi)\,Cos\,x-(r+si)\,Sin\,x} = -\frac{2\pi}{b}\,[(ps-qr)^2>q^2+s^2], = \frac{\pi}{\sqrt{1-bc}}\;\frac{b+c}{1+\sqrt{1-bc}}$ $[(ps-qr)^2<q^2+s^2]$ (VIII, 481).

18) $\int \frac{Sin\,a x\,dx}{1-(p+qi)\,Cos\,x-(r+si)\,Sin\,x} = \frac{\pi i}{\sqrt{1-bc}}\;\frac{\{1+\sqrt{1-bc}\}^a-\{1-\sqrt{1-bc}\}^a}{b^a}$ $[(ps-qr)^2>q^2+s^2], = \frac{\pi i}{\sqrt{1-bc}}\;\frac{b^a-c^a}{\{1+\sqrt{1-bc}\}^a}\,[(ps-qr)^2>q^2+s^2]$ (VIII, 482).

19) $\int \frac{Cos\,a x\,dx}{1-(p+qi)\,Cos\,x-(r+si)\,Sin\,x} = \frac{\pi}{\sqrt{1-bc}}\;\frac{\{1-\sqrt{1-bc}\}^a-\{1+\sqrt{1-bc}\}^a}{b^a}$ $[(ps-qr)^2>q^2+s^2], = \frac{\pi}{\sqrt{1-bc}}\;\frac{b^a+c^a}{\{1+\sqrt{1-bc}\}^a}\,[(ps-qr)^2<q^2+s^2]$ (VIII, 481).

Dans 14) à 19) on a $ps>qr$, $b=p+s+(q-r)i$, $c=p-s+(q+r)i$, $\sqrt{1-bc}$ positive.

20) $\int \frac{dx}{p+qi-(r+si)\,Cos\,x-(t+ui)\,Sin\,x} = 0\,[(ru-st)^2>(ps-qr)^2+(pu-qt)^2)]$ (IV, 146).

21) $\int \frac{dx}{(a+bi\,Cos\,x+ci\,Sin\,x)^2} = \frac{2a\pi}{\sqrt{a^2+b^2+c^2}^3}$ (IV, 147).

22) $\int \frac{dx}{\sqrt{p+q\,Cos\,x}} = \frac{4}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) =$ 23) $\int \frac{dx}{\sqrt{p-q\,Cos\,x}}$ (VIII, 330).

24) $\int \frac{Cos\,x\,dx}{\sqrt{p+q\,Cos\,x}} = \frac{4}{q}\sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{4p}{q\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 330).

25) $\int \frac{Cos\,x\,dx}{\sqrt{p-q\,Cos\,x}} = \frac{4p}{q\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{4}{q}\sqrt{p+q}\,.\,E'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 330).

26) $\int \frac{dx}{\sqrt{p+q\,Cos\,x}^3} = \frac{4\sqrt{p+q}}{p^2-q^2} E'\left(\sqrt{\frac{2q}{p+q}}\right)$ (IV, 147).

1) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Sin\,qx\,dx = 0$ (VIII, 532).

2) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\,qx\,dx = \frac{\pi\,\Gamma(p+1)}{2^p\,\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

3) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Sin\left(\frac{1}{2}q\pi - qx\right)dx = \frac{\pi}{2^p}\,Sin\,\frac{1}{2}q\pi\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

4) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\left(\frac{1}{2}q\pi - qx\right)dx = \frac{\pi}{2^p}\,Cos\,\frac{1}{2}q\pi\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ (VIII, 532).

5) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} Cos^p x\,.\,Cos\,\{q(x-\lambda)\}\,dx = \frac{\pi}{2^p}\,Cos\,q\lambda\,\frac{\Gamma(p+1)}{\Gamma\left(\frac{p+q}{2}+1\right)\Gamma\left(\frac{p-q}{2}+1\right)}$ V. T. 69, N. 3, 4.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} \frac{Cos^{a-1}x\,.\,Cos\{(a+1)x\}}{1-p^2\,Cos^2 x}dx = \frac{2\pi}{a}\,\frac{d}{dp}\,.\left\{\frac{1-\sqrt{1-p}}{p}\right\}^a$ $[p<1]$ Russell, Phil. Trans. 1855.

7) $\int_{\frac{q\pi}{a}}^{\frac{p\pi}{a}} \frac{Sin\,bx\,dx}{Sin\,ax} = \frac{1}{a}\sum_1^{a-1}(-1)^{n-1}Sin\,\frac{nb\pi}{a}\,.\,l\,\frac{\Gamma\left(\frac{a+n+p}{2a}\right)\Gamma\left(\frac{a+n-p}{2a}\right)\Gamma\left(\frac{n+q}{2a}\right)\Gamma\left(\frac{n-p}{2a}\right)}{\Gamma\left(\frac{a+n+q}{2a}\right)\Gamma\left(\frac{a+n-q}{2a}\right)\Gamma\left(\frac{n+p}{2a}\right)\Gamma\left(\frac{n-q}{2a}\right)}$

$\begin{bmatrix} a+b \\ \text{impair} \end{bmatrix} = \frac{1}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Sin\,\frac{nb\pi}{a}\,.\,l\,\frac{\Gamma\left(\frac{a-n+p}{a}\right)\Gamma\left(\frac{a-n-p}{a}\right)\Gamma\left(\frac{n+q}{a}\right)\Gamma\left(\frac{n-p}{a}\right)}{\Gamma\left(\frac{a-n+q}{a}\right)\Gamma\left(\frac{a-n-q}{a}\right)\Gamma\left(\frac{n+p}{a}\right)\Gamma\left(\frac{n-q}{a}\right)}$

$\begin{bmatrix} a+b \\ \text{pair} \end{bmatrix}$ $[1>p>q>-1]$ Lindmann, Gr. 35, 475.

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8) $\int_0^{a\pi} \frac{dx}{p+q\,Cos\,x} = \frac{a\pi}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 206).

9) $\int_0^{(a+\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x} = \frac{a\pi + Arccos\left(\frac{q}{p}\right)}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = \frac{1}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\,[p^2<q^2]$ (VIII, 206).

10) $\int_0^{a\pi} \frac{dx}{(p+q\,Cos\,x)^2} = \frac{ap\pi}{\sqrt{p^2-q^2}^3}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 208).

11) $\int_0^{(a+\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos\,x)^2} = \frac{-q\,Cos\,a\pi}{p(p^2-q^2)} + p\frac{a\pi + Arccos\left(\frac{q}{p}\right)}{\sqrt{p^2-q^2}^3}\,[p^2>q^2], = \frac{q\,Cos\,a\pi}{p(q^2-p^2)} +$

$+ \frac{p}{\sqrt{q^2-p^2}^3}\,l\frac{p}{q+\sqrt{q^2-p^2}}\,[p^2<q^2]$ (VIII, 325*).

12) $\int_0^{a\pi} \frac{Cos\,x\,dx}{(p+q\,Cos\,x)^2} = \frac{1}{q^2-p^2}\;\frac{qa\pi}{p\sqrt{1-\frac{q^2}{p^2}}}\,[p^2>q^2], = 0\,[p^2<q^2]$ (VIII, 325).

13) $\int_0^{(a+\frac{1}{2})\pi} \frac{Cos\,x\,dx}{(p+q\,Cos\,x)^2} = \frac{1}{p^2-q^2}\left\{\frac{-aq\pi}{p\sqrt{1-\frac{q^2}{p^2}}} + Cos\,a\pi - \frac{q}{p\sqrt{1-\frac{q^2}{p^2}}}\,Arccos\frac{q}{p}\right\}[p^2>q^2], =$

$= \frac{1}{q^2-p^2}\left\{Cos\,a\pi + \frac{q}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\right\}[p^2<q^2]$ (VIII, 325*).

14) $\int_0^{a\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = 0$ (VIII, 325).

15) $\int_0^{(a+\frac{1}{2})\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = \frac{1}{p}\,Cos\,a\pi$ (VIII, 325*).

16) $\int_0^{r\pi} \frac{p\,Cos\,x+q}{(p+q\,Cos\,x)^2}\,dx = \frac{Sin\,r\pi}{p+q\,Cos\,r\pi}$ (VIII, 325).

17) $\int_0^{2a\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2a\pi}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\,[p^2>q^2+r^2], = 0\,[p^2<q^2+r^2]$ (VIII, 210).

18) $\int_0^{(2a-\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi - Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q-r}\right)\right\}[p^2>q^2+r^2], =$

$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\,l\left\{\frac{p+q-r-\sqrt{q^2+r^2-p^2}}{p+q-r+\sqrt{q^2+r^2-p^2}}\right\}^2[p^2<q^2+r^2]$ (VIII, 208, 210).

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19) $\int_0^{(2a+\frac{1}{2})\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi + Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q+r}\right)\right\}[p^2>q^2+r^2], =$

$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\, l\left\{\frac{p+q+r+\sqrt{q^2+r^2-p^2}}{p+q+r-\sqrt{q^2+r^2-p^2}}\right\}^2 [p^2<q^2+r^2]$ (VIII, 208, 210).

20) $\int_0^{(2a+1)\pi} \frac{dx}{p+q\,Cos\,x+r\,Sin\,x} = \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{a\pi + Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}\left[\begin{matrix}p^2>q^2+r^2,\\ r>0\end{matrix}\right], =$

$= \frac{2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}}\left\{(a+1)\pi - Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}\left[\begin{matrix}p^2>q^2+r^2,\\ r<0\end{matrix}\right], =$

$= \frac{1}{2\sqrt{q^2+r^2-p^2}}\, l\left\{\frac{r-\sqrt{q^2+r^2-p^2}}{r+\sqrt{q^2+r^2-p^2}}\right\}^2 [p^2<q^2+r^2]$ (VIII, 209, 210).

21) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^2} = \frac{2ap\pi}{\sqrt{p^2-q^2-r^2}^3}[p^2>q^2+r^2], = 0\,[p^2<q^2+r^2]$ (VIII, 211*).

22) $\int_0^{(2a-\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos x+r\,Sin x)^2} = \frac{q^2-r^2+p(q-r)}{(p+q)(p+r)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi - Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q-r}\right)\right\}$

$[p^2>q^2+r^2], = \frac{r^2-q^2+p(r-q)}{(p+q)(p+r)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{p+q-r-\sqrt{q^2+r^2-p^2}}{p+q-r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

23) $\int_0^{(2a+\frac{1}{2})\pi} \frac{dx}{(p+q\,Cos x+r\,Sin x)^2} = \frac{-[q^2+r^2+p(q+r)]}{(p+q)(p+r)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi + Arctg\left(\frac{\sqrt{p^2-q^2-r^2}}{p+q+r}\right)\right\}$

$[p^2>q^2+r^2], = \frac{q^2+r^2+p(q+r)}{(p+q)(p+r)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{p+q+r-\sqrt{q^2+r^2-p^2}}{p+q+r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

24) $\int_0^{(2a+1)\pi} \frac{dx}{(p+q\,Cos x+r\,Sin x)^2} = \frac{2pr}{(q^2-p^2)(p^2-q^2-r^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{a\pi + Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}$

$\left[\begin{matrix}p^2>q^2+r^2,\\ r>0\end{matrix}\right], = \frac{2pr}{(p^2-q^2)(q^2+r^2-p^2)} + \frac{2p}{\sqrt{p^2-q^2-r^2}^3}\left\{(a+1)\pi - Arctg\left(\sqrt{\frac{p^2-q^2-r^2}{r^2}}\right)\right\}$

$\left[\begin{matrix}p^2>q^2+r^2,\\ r<0\end{matrix}\right], = \frac{2pr}{(p^2-q^2)(q^2+r^2-p^2)} + \frac{p}{2\sqrt{q^2+r^2-p^2}^3}\, l\left\{\frac{r-\sqrt{q^2+r^2-p^2}}{r+\sqrt{q^2+r^2-p^2}}\right\}^2$

$[p^2<q^2+r^2]$ (VIII, 211*).

25) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+Sin\,r\,x)^3} = \frac{2p^2+q^2+r^2}{p\sqrt{1-\frac{q^2+r^2}{p^2}}^5}a\pi\,[p^2>q^2+r^2], = 0\,[p^2<q^2+r^2]$ (IV, 150).

26) $\int_0^{2a\pi} \frac{dx}{(p+q\,Cos\,x+r\,Sin\,x)^4} = \frac{2p^2+3(q^2+r^2)}{\sqrt{p^2-q^2-r^2}^7}pa\pi\,[p^2>q^2+r^2], = 0\,[p^2<q^2+r^2]$ (IV, 150).

1) $\int Sin(q x^2) dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 2) $\int Cos(q x^2) dx$ (VIII, 442).

3) $\int Sin(q x^2 \pm 2 p x) dx = \left(Cos\frac{p^2}{q} - Sin\frac{p^2}{q}\right)\frac{1}{2}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

4) $\int Cos(q x^2 \pm 2 p x) dx = \left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)\frac{1}{2}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

5) $\int Sin\left(q x^2 \pm 2 p x + \frac{p^2}{q}\right) dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 6) $\int Cos\left(q x^2 \pm 2 p x + \frac{p^2}{q}\right) dx$ (VIII, 442).

7) $\int Sin(p x^q + r x^s) dx = \frac{1}{q}\sum_0^\infty \frac{(-r)^n}{1^{n/1}} \frac{1}{(\sqrt[q]{p})^{ns+1}} \Gamma\left(\frac{ns+1}{q}\right) Sin\left\{\frac{n(s-q)+1}{2q}\pi\right\}$

8) $\int Cos(p x^q + r x^s) dx = \frac{1}{q}\sum_0^\infty \frac{(-r)^n}{1^{n/1}} \frac{1}{(\sqrt[q]{p})^{ns+1}} \Gamma\left(\frac{ns+1}{q}\right) Cos\left\{\frac{n(s-q)\pi+1}{2q}\pi\right\}$

Sur 7) et 8) voyez De Morgan, Int. Calc.

9) $\int Sin^{2a+1}(p x^2) dx = \frac{1}{2^{2a+1}}\sum_0^a (-1)^{n+a}\binom{2a+1}{n}\sqrt{\frac{\pi}{2p(2a+1-2n)}}$ (VIII, 476).

10) $\int Cos^{2a+1}(p x^2) dx = \frac{1}{2^{2a+1}}\sum_0^a \binom{2a+1}{n}\sqrt{\frac{\pi}{2p(2a+1-2n)}}$ (VIII, 476).

11) $\int Sin(q x^2) . Sin 2 p x dx = 0 =$ 12) $\int Cos(q x^2) . Sin 2 p x dx$ (VIII, 443).

13) $\int Sin(q x^2) . Cos 2 p x dx = \frac{1}{2}\left(Cos\frac{p^2}{q} - Sin\frac{p^2}{q}\right)\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

14) $\int Cos(q x^2) . Cos 2 p x dx = \frac{1}{2}\left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

15) $\int Sin(q^2 + x^2) . Cos 2 q x dx = \frac{1}{4}\sqrt{2\pi} =$ 16) $\int Cos(q^2 + x^2) . Cos 2 q x dx$ V. T. 70, N. 13, 14.

17) $\int Sin\left(q x^2 + \frac{p^2}{q}\right) . Sin 2 p x dx = 0 =$ 18) $\int Cos\left(q x^2 + \frac{p^2}{q}\right) . Sin 2 p x dx$ (VIII, 443).

19) $\int Sin\left(q x^2 + \frac{p^2}{q}\right) . Cos 2 p x dx = \frac{1}{2}\sqrt{\frac{\pi}{2q}} =$ 20) $\int Cos\left(q x^2 + \frac{p^2}{q}\right) . Cos 2 p x dx$ (VIII, 443).

21) $\int Sin\, q x . Cos(2 p \sqrt{x}) dx = 0 =$ 22) $\int Cos\, q x . Cos(2 p \sqrt{x}) dx$ V. T. 70, N. 11, 12.

23) $\int Sin\, q x . Sin(2 p \sqrt{x}) dx = \left(Sin\frac{p^2}{q} + Cos\frac{p^2}{q}\right)\frac{p}{q}\sqrt{\frac{\pi}{2q}}$ (VIII, 443).

24) $\int Cos\, q\,x\,.\,Sin\,(2\,p\,\sqrt{x})\,d\,x = \left(Sin\frac{p^2}{q} - Cos\frac{p^2}{q}\right)\frac{p}{q}\,\sqrt{\frac{\pi}{2\,q}}$ (VIII, 443).

25) $\int Sin\left(p^2\,x^2 - 2\,p\,q + \frac{q^2}{x^2}\right)d\,x = \frac{1}{4p}\,\sqrt{2\,\pi} =$ 26) $\int Cos\left(p^2\,x^2 - 2\,p\,q + \frac{q^2}{x^2}\right)d\,x$ (VIII, 427).

27) $\int Sin\left(p^2\,x^2 + \frac{q^2}{x^2}\right)d\,x = \frac{1}{4p}\,(Cos\,2\,p\,q + Sin\,2\,p\,q)\,\sqrt{2\,\pi}$ (VIII, 427).

28) $\int Cos\left(p^2\,x^2 + \frac{q^2}{x^2}\right)d\,x = \frac{1}{4p}\,(Cos\,2\,p\,q - Sin\,2\,p\,q)\,\sqrt{2\,\pi}$ (VIII, 427).

29) $\int \frac{d\,x}{Cos\,\{(q - p\,i)\,x\}} = \frac{\pi}{2\,(p + q\,i)}$ (VIII, 297).

$$\left.\begin{array}{l} 30)\ \int \frac{Sin\,q\,x - p\,Sin\,\{(q-r)\,x\}}{1 - 2\,p\,Cos\,r\,x + p^2}\,d\,x = \sum\limits_0^\infty \frac{p^n}{n\,r + q} \\ 31)\ \int \frac{Cos\,q\,x - p\,Cos\,\{(q-r)\,x\}}{1 - 2\,p\,Cos\,r\,x + p^2}\,d\,x = 0 \end{array}\right\}$$ Poisson, P. 20, 222.

$$\left.\begin{array}{l}
1)\ \int Sin\,\{(a+1)\,x\}.Sin^{a-1}\,x\,d\,x = \frac{1}{a}\,Sin^a\,\lambda\,.\,Sin\,a\,\lambda \\
2)\ \int Sin\,\{(a+1)\,x\}.Cos^{a-1}\,x\,d\,x = \frac{1}{\lambda}\,(1 - Cos^a\,\lambda\,.\,Cos\,a\,\lambda) \\
3)\ \int Cos\,\{(a+1)\,x\}.Sin^{a-1}\,x\,d\,x = \frac{1}{a}\,Sin^a\,\lambda\,.\,Cos\,a\,\lambda \\
4)\ \int Cos\,\{(a+1)\,x\}.Cos^{a-1}\,x\,d\,x = \frac{1}{\lambda}\,Cos^a\,\lambda\,.\,Sin\,a\,\lambda \\
5)\ \int Sin\left\{(a+1)\left(\frac{\pi}{2} - x\right)\right\}.Sin^{a-1}\,x\,d\,x = \frac{1}{a}\,Sin^a\lambda\,.\,Cos\left\{a\left(\frac{\pi}{2} - \lambda\right)\right\} \\
6)\ \int Cos\left\{(a+1)\left(\frac{\pi}{2} - x\right)\right\}.Sin^{a-1}\,xdx = -\frac{1}{a}\,Sin^a\lambda.Sin\left\{a\left(\frac{\pi}{2} - \lambda\right)\right\}
\end{array}\right\}$$ Lindmann, Gr. 38, 246.

7) $\int \frac{d\,x}{\sqrt{Cos^2\,x - Cos^2\,\lambda}} = \mathrm{F}'\,(Sin\,\lambda)$ (IV, 159).

8) $\int \frac{Sin\,x\,d\,x}{\sqrt{Cos^2\,x - Cos^2\,\lambda}} = \frac{1}{2}\,l\,\frac{1 + Sin\,\lambda}{1 - Sin\,\lambda}$ (VIII, 307).

9) $\int \frac{Cos^2\,x\,d\,x}{\sqrt{Cos^2\,x - Cos^2\,\lambda}} = \mathrm{E}'\,(Sin\,\lambda)$ (IV, 159).

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10) $\int \frac{Sin^3 x\, dx}{\sqrt{Cos^2 x - Cos^2 \lambda}} = \frac{1 + Sin^2 \lambda}{4}\, l \frac{1 + Sin \lambda}{1 - Sin \lambda} - \frac{1}{2} Sin \lambda$ (IV, 159).

11) $\int \frac{dx}{Cos^2 x . \sqrt{Cos^2 x - Cos^2 \lambda}} = Sec^2 \lambda . E'(Sin \lambda)$ (IV, 159).

12) $\int \frac{dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\, F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right)$ (VIII, 312).

13) $\int \frac{Sin x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = F\left\{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}, Arccot(Sin \mu . Cot \lambda)\right\}$
(IV, 159).

14) $\int \frac{Sin x . Cos x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec \mu . Arctg(Sin \lambda . Cot \mu)$ (IV, 159).

15) $\int \frac{Cos^2 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{Cos^3 \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\, F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) +$
$+ Sec \mu . \left\{F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) . E\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}, Arccos(Cos \lambda . Cos \mu)\right) -\right.$
$\left. - E'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) . F\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}, Arccos(Cos \lambda . Cos \mu)\right)\right\}$ (IV, 159).

16) $\int \frac{Sin x . Cos^2 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec^2 \mu . E\left(\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}, Arccot(Sin \mu . Cot \lambda)\right) -$
$- Sin \lambda . Sin \mu . Sec^2 \mu$ (IV, 159).

17) $\int \frac{Sin x . Cos^3 x\, dx}{\sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1 + Cos^2 \lambda . Cos^2 \mu}{2\, Cos^3 \mu}\, Arctg(Sin \lambda . Cot \mu) - \frac{Sin \mu . Sin \lambda}{2\, Cos^2 \mu}$
(IV, 159).

18) $\int \frac{Sin x\, dx}{Cos x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec \lambda . Arccot(Sin \mu . Cot \lambda)$ (IV, 159).

19) $\int \frac{dx}{Cos^2 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{Cos^2 \mu}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\, F'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right) +$
$+ Sec^2 \lambda . \sqrt{1 - Cos^2 \lambda . Cos^2 \mu} . E'\left(\frac{Sin \lambda}{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}}\right)$ (IV, 159).

20) $\int \frac{Sin x\, dx}{Cos^2 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = Sec^2 \lambda . E\left\{\sqrt{1 - Cos^2 \lambda . Cos^2 \mu}, Arccot(Sin \mu . Cot \lambda)\right\}$
(IV, 159).

21) $\int \frac{Sin x\, dx}{Cos^3 x . \sqrt{(Cos^2 x - Cos^2 \lambda)(1 - Cos^2 \mu . Cos^2 x)}} = \frac{1 + Cos^2 \lambda . Cos^2 \mu}{2\, Cos^3 \lambda}\, Arccot(Sin \mu . Cot \lambda) +$
$+ \frac{Sin \mu . Sin \lambda}{2\, Cos^2 \lambda}$ (IV, 159).

22) $\int \frac{Cos \frac{1}{2} x}{1 - 2p\, Cos x + p^2} \frac{dx}{\sqrt{2(Cos x - Cos \lambda)}} = \frac{\pi}{2(1 - p)\sqrt{1 - 2p\, Cos \lambda + p^2}}$ (IV, 159).

1) $\int Sin\, x . Cos\, x\, dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16} (Sin^2 \mu - Sin^2 \lambda)^2$ (IV, 160).

2) $\int Sin^3 x . Cos\, x\, dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{32} (Sin^2 \mu - Sin^2 \lambda)^2 (Sin^2 \lambda + Sin^2 \mu)$ (IV, 160).

3) $\int Sin^{2a+1} x . Cos\, x\, dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4} (Sin^2 \mu - Sin^2 \lambda)^2 Sin^{2a-1} \mu .$
$\sum_0^\infty (-1)^n \binom{a-2}{n} \frac{3^{n/2}}{4^{n+1/2}} \frac{(Sin^2 \mu - Sin^2 \lambda)^n}{Sin^{2n} \mu}$ (IV, 160).

4) $\int \frac{Cos\, x}{Sin\, x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4} (Sin\, \mu - Sin\, \lambda)^2$ (IV, 160).

5) $\int \frac{Cos\, x}{Sin^3 x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4} \frac{(Sin\, \mu - Sin\, \lambda)^2}{Sin\, \lambda . Sin\, \mu}$ (IV, 160).

6) $\int \frac{Cos\, x}{Sin^5 x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16} \frac{(Sin^2 \mu - Sin^2 \lambda)^2}{Sin^3 \lambda . Sin^3 \mu}$ (IV, 160).

7) $\int \frac{Cos\, x}{Sin^7 x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{32} \frac{(Sin^2 \mu - Sin^2 \lambda)^2}{Sin^5 \lambda . Sin^5 \mu} (Sin^2 \lambda + Sin^2 \mu)$ (IV, 160).

8) $\int \frac{Cos\, x}{Sin^{2a+1} x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi\, Sin\, \mu}{4\, Sin^{2a-1} \lambda} \sum_0^\infty (-1)^n \binom{a-2}{n} \frac{3^{n/2}}{4^{n+1/2}}$
$\left(\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}\right)^{n+2}$ (IV, 160).

9) $\int \frac{Sin\, x}{Cos\, x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4} (Cos\, \lambda - Cos\, \mu)^2$ (IV, 160).

10) $\int \frac{Sin\, x}{Cos^3 x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{4} \frac{(Cos\, \lambda - Cos\, \mu)^2}{Cos\, \lambda . Cos\, \mu}$ (IV, 160).

11) $\int \frac{Sin\, x}{Cos^5 x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi}{16} \frac{(Cos^2 \lambda - Cos^2 \mu)^2}{Cos^3 \lambda . Cos^3 \mu}$ (IV, 160).

12) $\int \frac{Sin\, x}{Cos^{2a+1} x} dx \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{\pi\, Cos\, \lambda}{4\, Cos^{2a-1} \mu} \sum_0^\infty (-1)^n \binom{a-2}{n} \frac{3^{n/2}}{4^{n+1/2}}$
$\left(\frac{Cos^2 \lambda - Cos^2 \mu}{Cos^2 \lambda}\right)^{n+2}$ (IV, 160).

13) $\int \frac{dx}{Sin\, x . Cos\, x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{2} \pi \left\{1 - Cos(\mu - \lambda)\right\}$ (IV, 161).

14) $\int \frac{dx}{Sin^3 x . Cos\, x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{4} \pi\, Cosec\, \lambda . Cosec\, \mu . Sin^2 (\mu - \lambda)$ (IV, 161).

15) $\int \frac{dx}{Sin x . Cos^3 x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{4} \pi \, Sec \lambda . Sec \mu . Sin^2 (\mu - \lambda)$ (IV, 161).

16) $\int \frac{Sin^3 x \, dx}{Cos x} \sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)} = \frac{1}{2} \pi (Cos \lambda - Cos \mu)^2 - \frac{1}{16} \pi (Sin^2 \mu - Sin^2 \lambda)^2$ (IV, 161).

F. Circ. Dir. irrat. fract. à dén. irrat. TABLE 73. Lim. λ et μ.

1) $\int \frac{dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{Cos \lambda . Sin \mu} F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right)$ (VIII, 310).

2) $\int \frac{Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = Cosec \mu . F' \left(\sqrt{\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}} \right)$ (IV, 163).

3) $\int \frac{Sin^2 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{Sin \mu}{Cos \lambda} F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) + E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . F \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) - F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . E \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right)$ (IV, 162).

4) $\int \frac{Sin x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2} \pi$ (VIII, 311).

5) $\int \frac{Sin^2 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = Sin \mu . E' \left(\sqrt{\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu}} \right)$ (IV, 163).

6) $\int \frac{Sin^4 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1 + Sin^2 \lambda + Sin^2 \mu}{2} \left\{ E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) - F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) . E \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu}, \mu \right) \right\} + \frac{1 + Sin^2 \mu}{2 \, Cos \lambda} Sin \mu . F' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right) - \frac{Sin \mu . Cos \lambda}{2} E' \left(\frac{\sqrt{Cos^2 \lambda - Cos^2 \mu}}{Cos \lambda . Sin \mu} \right)$ (IV, 163).

7) $\int \frac{Sin^3 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{4} \pi (Sin^2 \lambda + Sin^2 \mu)$ (IV, 161).

8) $\int \frac{Sin x . Cos^3 x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{4} \pi (Cos^2 \lambda + Cos^2 \mu)$ (IV, 162).

9) $\int \frac{Sin^5 x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{16} \pi (3 \, Sin^4 \lambda + 2 \, Sin^2 \lambda . Sin^2 \mu + 3 \, Sin^4 \mu)$ (IV, 162).

10) $\int \frac{Sin^{2a+1} x . Cos x \, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2} \pi \, Sin^{2a} \mu . \sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Sin^2 \mu - Sin^2 \lambda}{Sin^2 \mu} \right)^n$ (IV, 162).

11) $$\int \frac{Sin\, x\, .\, Cos^{2a+1} x\, dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2}\pi\, Cos^{2a}\lambda\, .\, \sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Cos^2\lambda - Cos^2\mu}{Cos^2\lambda}\right)^n$$ (IV, 162).

12) $$\int \frac{Cos\, x\, dx}{Sin\, x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\, Cosec\,\lambda\, .\, Cosec\,\mu$$ (VIII, 312).

13) $$\int \frac{dx}{Sin^2 x\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Cos\lambda\, .\, Sin\mu} F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\, .\, Sin\mu}\right) + \frac{Cos\lambda}{Sin^2\lambda . Sin\mu} E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\, .\, Sin\mu}\right)$$ V. T. 73, N. 1, 15.

14) $$\int \frac{Cos\, x\, dx}{Sin^2 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Sin^2\lambda . Sin\mu} E'\left(\sqrt{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}}\right)$$ (IV, 163).

15) $$\int \frac{Cos^2 x\, dx}{Sin^2 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{Cos\lambda}{Sin^2\lambda . Sin\mu} E'\left(\sqrt{1 - Tg^2\lambda . Cot^2\mu}\right)$$ (VIII, 310).

16) $$\int \frac{Cos\, x\, dx}{Sin^3 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\, Cosec^3\lambda . Cosec^3\mu . (Sin^2\lambda + Sin^2\mu)$$ (VIII, 312).

17) $$\int \frac{Cos\, x\, dx}{Sin^{2a+1} x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\, Cosec^{2a+1}\lambda . Cosec\,\mu . \sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}\right)^2$$ (IV, 162).

18) $$\int \frac{dx}{Cos\, x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Sin\mu . Cos^2\mu} \Pi\left\{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\lambda},\ Tg^2\mu,\ \sqrt{\frac{Sin^2\mu - Sin^2\lambda}{Sin^2\mu}}\right\}$$ (IV, 163).

19) $$\int \frac{Sin\, x\, dx}{Cos\, x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{2}\pi\, Sec\,\lambda . Sec\,\mu$$ (IV, 162).

20) $$\int \frac{dx}{Cos^2 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{Cos\lambda . Sin\mu} F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\, .\, Sin\mu}\right) + \frac{Sin\mu}{Cos\lambda . Cos^2\mu} E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\lambda\, .\, Sin\mu}\right)$$ V.T. 73, N. 1, 21.

21) $$\int \frac{Sin^2 x\, dx}{Cos^2 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{Tg\,\mu}{Cos\lambda . Cos\mu} E'\left(\sqrt{1 - Tg^2\lambda . Cot^2\mu}\right)$$ (VIII, 310).

22) $$\int \frac{Sin\, x\, dx}{Cos^3 x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\, Sec^3\lambda . Sec^3\mu . (Cos^2\lambda + Cos^2\mu)$$ (IV, 162).

23) $$\int \frac{Sin\, x\, dx}{Cos^{2a+1} x.\, \sqrt{(Sin^2 x - Sin^2\lambda)(Sin^2\mu - Sin^2 x)}} = \frac{1}{4}\pi\, Sec^{2a+1}\mu . Sec\,\lambda . \sum_0^a (-1)^n \binom{a}{n} \frac{1^{n/2}}{2^{n/2}} \left(\frac{Cos^2\lambda - Cos^2\mu}{Cos^2\lambda}\right)^n$$ (IV, 162).

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24) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} \frac{dx}{\sqrt{\{1-(1-Cot^2\lambda\,.\,Cot^2\mu)\,Sin^2 x\}}} = \frac{Sin\,\mu}{Cos\,\lambda}$
$F'\left\{\sqrt{1-Sin^2 2\mu\,.\,Cosec^2 2\lambda}\right\}$ (VIII, 427).

25) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} \frac{dx}{1-p^2 Sin^2 x} = \frac{\pi}{2\sqrt{(1-p^2 Sin^2\lambda)(1-p^2 Sin^2\mu)}}$
(IV, 347*).

26) $\int dx \sqrt{\frac{Sin^2 x - Sin^2\lambda}{Sin^2\mu - Sin^2 x}} = \frac{Sin^2\mu - Sin^2\lambda}{Sin\,\mu\,.\,Cos\,\lambda} F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right) + E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).$
$F\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}, \mu\right) - F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).\,E\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}, \mu\right)$ (IV, 163).

27) $\int dx \sqrt{\frac{Sin^2\mu - Sin^2 x}{Sin^2 x - Sin^2\lambda}} = F'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).E\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}, \mu\right) - E'\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}\right).$
$F\left(\frac{\sqrt{Cos^2\lambda - Cos^2\mu}}{Cos\,\lambda\,.\,Sin\,\mu}, \mu\right)$ (IV, 163).

28) $\int \frac{Sin\,x}{(Cos\,\lambda - Cos\,x)^{1-p}(Cos\,x - Cos\,\mu)^p} \frac{dx}{1-2r\,Cos\,x+r^2} = \frac{\pi}{(1-2r\,Cos\,\lambda+r^2)^{1-p}} \frac{Cosec\,p\pi}{(1-2r\,Cos\,\mu+r^2)^p}$
Enneper, Schl. Z. 7, 346.

1) $\int_0^1 Sin\{p\sqrt{1-x^2}\}\,dx = \frac{1}{4}p\pi \sum_0^\infty \frac{(-p^2)^n}{2^{n/2}\,4^{n/2}}$ Lummel, Gr. 37, 349.

2) $\int_{\frac{\pi}{2}}^\infty Sin\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Sin\,2px\,dx = \frac{1}{2}Sin\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

3) $\int_{\frac{\pi}{2}}^\infty Sin\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Cos\,2px\,dx = \frac{1}{2}Cos\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

4) $\int_{\frac{\pi}{2}}^\infty Cos\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Sin\,2px\,dx = \frac{1}{2}Sin\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

5) $\int_{\frac{\pi}{2}}^\infty Cos\left(qx^2 - q\pi x + \frac{1}{4}q\pi^2 + \frac{p^2}{q}\right).\,Cos\,2px\,dx = \frac{1}{2}Cos\,p\pi\,.\sqrt{\frac{\pi}{2q}}$ (VIII, 540).

6) $\int_0^{\frac{1}{2}Arccos\,p} dx\sqrt{\frac{Cos\,2x - p}{Cos\,2x+1}} = 2\pi\left\{1-\sqrt{\frac{1+p}{2}}\right\}$ (IV, 158).

7) $\int_\lambda^{\frac{\pi}{2}} Sin\left\{(a+1)\left(\frac{1}{2}\pi - x\right)\right\}.\,Sin^{a-1}x\,dx = \frac{1}{a}\left[1 - Sin^a\lambda\,.\,Cos\left\{a\left(\frac{\pi}{2}-\lambda\right)\right\}\right]$

8) $\int_\lambda^{\frac{\pi}{2}} Cos\left\{(a+1)\left(\frac{1}{2}\pi - x\right)\right\}.\,Sin^{a-1}x\,dx = \frac{1}{a}Sin^a\lambda\,.\,Sin\left\{a\left(\frac{\pi}{2}-\lambda\right)\right\}$

Sur 7) et 8) voyez Lindmann, Gr. 38, 246.

9) $\int_{\lambda}^{\frac{\pi}{2}} dx \sqrt{1-p^2 \, Sin^2 x} = \mathrm{E}(p,\lambda) - \frac{p^2 \, Sin\lambda . Cos\lambda}{\sqrt{1-p^2 \, Sin^2 \lambda}}$

10) $\int_{\lambda}^{\frac{\pi}{2}} \sqrt{1-p^2 \, Sin^2 x} \, \frac{dx}{Sin^2 x} = Tg\lambda . \sqrt{1-p^2 \, Sin^2 \lambda} + (1-p^2)\mathrm{F}(p,\lambda) - \mathrm{E}(p,\lambda)$

Sur 9) et 10) voyez Catalan, L. 4, 323.

11) $\int_{\lambda}^{\frac{\pi}{2}} \frac{dx}{\sqrt{Sin\, x - Sin\, \lambda}} = \sqrt{2} . \mathrm{F}'\left(Sin \frac{\pi - 2\lambda}{4}\right)$ (VIII, 304).

12) $\int_{\lambda}^{\pi-\lambda} \frac{dx}{\sqrt{Sin\, x - Sin\, \lambda}} = 2\sqrt{2} . \mathrm{F}'\left(Sin \frac{\pi - 2\lambda}{4}\right)$ (VIII, 304).

F. Circ. Dir. Intégr. Limites [Lim. $k = \infty$]. TABLE 75. Lim. diverses.

1) $\int_0^{\frac{\pi}{2}} \frac{Sin\, qkx\, dx}{Tang\, x} = -q\pi \sum_1^{k-1} Cos \frac{1}{2} qn\pi . l\, Sin \frac{n\pi}{2k}$ (IV, 110*).

2) $\int_0^{\frac{\pi}{2}} \frac{Sin\, x . Sin\{(2k+1)x\}}{1-2p\, Cos\, 2x + p^2} dx = 0\, [p^2 < 1], =$ 3) $\int \frac{Cos\, x . Cos\{(2k+1)x\} dx}{1-2p\, Cos\, 2x + p^2}$ (IV, 119, 120).

4) $\int_0^{\frac{\pi}{2}} Sin(k\, Sec\, x) \frac{dx}{\sqrt{Cos^3 x}} = (Cos\, k + Sin\, k) \sqrt{\frac{\pi}{4k}}$ (IV, 130).

5) $\int_0^{\frac{\pi}{2}} Cos(k\, Sec\, x) \frac{dx}{\sqrt{Cos^3 x}} = (Cos\, k - Sin\, k) \sqrt{\frac{\pi}{4k}}$ (IV, 130).

6) $\int_0^{\frac{1}{k}} \frac{Sin\, k^2 x}{Sin\, x} dx = \frac{1}{2}\pi$ (IV, 158).

7) $\int_0^{a} \frac{Sin\, kx\, dx}{Sin\, x} = \frac{1}{2}\pi\, [0 < a < \pi]$ (VIII, 380).

8) $\int_0^{a} \frac{Sin\, kx\, dx}{1-2p\, Cos\, x + p^2} = 0 =$ 9) $\int_0^{a} \frac{Cos\, kx\, dx}{1-2p\, Cos\, x + p^2}\, [0 < a < \infty]$ (VIII, 374).

10) $\int_0^{a} \frac{Sin\, kx . Sin\, x\, dx}{1-2p\, Cos\, x + p^2} = 0 =$ 11) $\int_0^{a} \frac{Cos\, kx . Cos\, x\, dx}{1-2p\, Cos\, x + p^2}\, [0 < a < \infty]$ (VIII, 374).

12) $\int_0^{a} \frac{Sin\, kx . Cos\, x\, dx}{1-2p\, Cos\, x + p^2} = 0 =$ 13) $\int_0^{a} \frac{Cos\, kx . Sin\, x\, dx}{1-2p\, Cos\, x + p^2}\, [0 < a < \infty]$ (VIII, 374).

14) $\int_0^{a} \frac{Sin\, kx}{1-2p\, Cos\, x + p^2} \frac{dx}{Cos\, x} = \frac{\pi}{2} \frac{1}{(1-p)^2}\, [0 < a < \pi]$ (VIII, 375).

15) $\int_0^{a} \frac{Sin\, 2kx}{1-2p\, Cos\, x + p^2} \, \frac{dx}{Sin\, x} = \frac{2p\pi}{(1-p^2)^2}\, [a = \pi], = \frac{2bp\pi}{(1-p^2)^2}\, [a = b\pi], = \frac{2bp\pi}{(1-p^2)^2} +$

$+ \frac{Cos\, b\pi}{(1-p\, Cos\, b\pi)^2} \begin{bmatrix} a = b\pi + c, \\ c < \pi \end{bmatrix}$ (VIII, 375).

16) $\int_0^a \frac{Sin\{(2k+1)x\}}{1-2p\,Cos x+p^2}\frac{dx}{Sin x}=\pi\frac{1+p^2}{(1-p^2)^2}[a=\pi],=b\pi\frac{1+p^2}{(1-p^2)^2}[a=b\pi],=b\pi\frac{1+p^2}{(1-p^2)^2}+$

$+\frac{1}{(1-p\,Cos b\pi)^2}\begin{bmatrix}a=b\pi+c,\\ c<\pi\end{bmatrix}$ (VIII, 357).

17) $\int_0^a \frac{Cos 2kx}{1-2p\,Cos x+p^2}\frac{dx}{Cos x}=0\left[0<a<\frac{\pi}{2}\right],=\infty\left[\frac{\pi}{2}<a<\infty\right]$ (VIII, 375).

18) $\int_0^a \frac{Cos\{(4k\pm 1)x\}}{1-2p\,Cos x+p^2}\frac{dx}{Cos x}=\pm\frac{\pi}{2}\frac{1}{1+p^2}\left[a=\frac{1}{2}\pi\right],=\pm\frac{\pi}{1+p^2}\left[\frac{1}{2}\pi<a<\frac{3}{2}\pi\right],=$

$=\pm\frac{3}{2}\frac{\pi}{1+p^2}\left[a=\frac{3\pi}{2}\right],=\pm\frac{2b+1}{2}\frac{\pi}{1+p^2}\left[a=\frac{2b+1}{2}\pi\right],=\pm\frac{b\pi}{1+p^2}$

$\left[a=\frac{2b+1}{2}\pi+c,\,c<\pi\right]$ (VIII, 375).

19) $\int_0^a \frac{Sin\{(2k+1)x\}}{1-2p\,Cos x+p^2}\,Tang x\,dx=0\left[a<\frac{1}{2}\pi\right],=\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

20) $\int_0^a \frac{Sin\{(\pm[4k+1]+1)x\}}{1-2p\,Cos x+p^2}\,Tang x\,dx=\frac{\pi}{2}\frac{1}{1-p^2}\left[a=\frac{1}{2}\pi\right],=\frac{\pi}{1-p^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right],=$

$=\frac{3\pi}{2}\frac{1}{1-p^2}\left[a=\frac{3\pi}{2}\right],=\frac{2b+1}{2}\frac{\pi}{1-p^2}\left[a=\frac{2b+1}{2}\pi\right],=\frac{b+1}{1-p^2}\pi\left[a=\frac{2b+1}{2}\pi+c,c<\pi\right]$

(VIII, 376).

1) $\int Arcsin px\,dx=Arcsin p+\frac{1}{p}\sqrt{1-p^2}-\frac{1}{p}$ (VIII, 368).

2) $\int Arccos px\,dx=Arccos p+\frac{1}{p}-\frac{1}{p}\sqrt{1-p^2}$ V. T. 76, N. 1.

3) $\int Arctg px\,dx=Arctg p-\frac{1}{2p}l(1+p^2)$ (VIII, 368).

4) $\int Arccot px\,dx=Arccot p+\frac{1}{2p}l(1+p^2)$ V. T. 76, N. 3.

5) $\int Arcsin(xe^{pi})\,dx=Arcsin\left(\frac{Cos p}{\sqrt{1+Sin p}}\right)-Cos p+\left(Cos\frac{\pi+2p}{4}-i\,Sin\frac{\pi+2p}{4}\right)\sqrt{2\,Sin p}+$

$+i\,Sin p+i\,l\{\sqrt{Sin p}+\sqrt{1+Sin p}\}\left[p\leqq\frac{1}{2}\pi\right]$ (IV, 163).

6) $\int Arctg(xe^{pi})\,dx=\frac{1}{4}\pi-p\,Sin p-\frac{1}{2}Cos p\,.\,l(2\,Cos p)+\frac{i}{4}\Big\{l\frac{1+Sin p}{1-Sin p}+2\,Sin p\,.\,l(2\,Cos p)-$

$-4p\,Cos p\Big\}\left[p^2\leqq\frac{1}{4}\pi^2\right]$ (IV, 163).

7) $\int Arcsin(\sqrt{x})\,dx = \frac{\pi}{4} =$ 8) $\int Arccos(\sqrt{x})\,dx$ (IV, 164).

9) $\int (Arccot\,x)^2\,dx = \frac{1}{16}\pi^2 + \frac{3}{4}\pi\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 77, N. 3 et T. 78, N. 3.

10) $\int (Arccot\,x)^p\,dx = \left(\frac{\pi}{4}\right)^p + \frac{p}{2}\left(\frac{\pi}{4}\right)^{p-1}\left\{2^p - 1 - 2\sum_1^\infty \frac{2^{2m+p}-1}{p+2m-1}\sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$
V. T. 77, N. 4 et T. 78, N. 4.

F. Circulaire Inverse. TABLE 77. Lim. 0 et ∞.

1) $\int Arctg\,px\,dx = \infty$ (VIII, 368) $=$ 2) $\int Arccot\,px\,dx$ V. T. 247, N. 2.

3) $\int (Arccot\,px)^2\,dx = \frac{\pi}{p}\, l2$ (VIII, 607).

4) $\int (Arccot\,x)^p\,dx = p\left(\frac{\pi}{2}\right)^{p-1}\left\{1 - \sum_1^\infty \frac{2}{p+2m-1}\sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 248, N. 14.

5) $\int \left(Arctg\,\frac{(p-r)x}{1+prx^2}\right)^2 dx = \frac{2}{r}\, lp + \frac{2}{p}\, lr - 2\frac{p+r}{pr}\, l\frac{p+r}{2}$ (VIII, 606).

6) $\int Arctg\,px\,.\,Arccot\frac{x}{q}\,dx = \infty$ (VIII, 605).

7) $\int Arccot\,qx.Arccot\frac{x}{p}\,dx = \frac{\pi}{2}\left\{\frac{1+pq}{q}\, l(1+pq) - p\, lpq\right\}$ (VIII, 607).

8) $\int Arccot\,px.Arccot\,qx\,dx = \frac{\pi}{2}\left\{\frac{1}{p}\, l\left(1+\frac{p}{q}\right) + \frac{1}{q}\, l\left(1+\frac{q}{p}\right)\right\}$ (VIII, 607).

9) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.\,Arctg\,qx\,dx = \infty =$ 10) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}.\,Arctg\,qx\,dx$ (VIII, 605).

11) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}.Arccot\,qx\,dx = \frac{\pi}{2}\left\{p\, l\frac{1+pq}{pq} - r\, l\frac{1+qr}{qr} + \frac{1}{q}\, l\frac{1+pq}{1+qr}\right\}$ (VIII, 607).

12) $\int Arctg\left\{\frac{(q-r)x}{1+qrx^2}\right\}.Arccot\frac{x}{p}\,dx = \frac{\pi}{2}\left\{p\, l\frac{q(1+pr)}{r(1+pq)} - \frac{1}{q}\, l(1+pq) + \frac{1}{r}\, l(1+pr)\right\}$ (VIII, 606).

13) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.Arctg\left\{\frac{(q-s)x}{1+qsx^2}\right\}dx = \frac{\pi}{2}\left\{\frac{1}{p}\, l\frac{s(p+q)}{q(p+s)} + \frac{1}{q}\, l\frac{r(p+q)}{p(q+r)} + \frac{1}{r}\, l\frac{q(r+s)}{s(q+r)} + \frac{1}{s}\, l\frac{p(r+s)}{r(p+s)}\right\}$
(VIII, 606).

14) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}.Arctg\left\{\frac{(q-s)x}{1+qsx^2}\right\}dx = \frac{\pi}{2}\left\{p\, l\frac{q(1+ps)}{s(1+pq)} + r\, l\frac{s(1+qr)}{q(1+rs)} + \frac{1}{q}\, l\frac{1+qr}{1+pq} + \frac{1}{s}\, l\frac{1+ps}{1+rs}\right\}$
(VIII, 606).

F. Circulaire Inverse.	TABLE 78.	Lim. 1 et ∞.

1) $\int Arctg\, p\, x\, d\, x = \infty =$ 2) $\int Arccot\, p\, x\, d\, x$ V. T. 76, N. 3, 4 et T. 77, N. 1, 2.

3) $\int (Arccot\, x)^2\, d\, x = -\frac{\pi^2}{16} + \frac{\pi}{4}\, l\, 2 + \sum_0^\infty \frac{(-1)^n}{(2\, n+1)^2}$ V. T. 253, N. 9.

4) $\int (Arccot\, x)^p\, d\, x = -\left(\frac{\pi}{4}\right)^p + \frac{1}{2}\, p \left(\frac{\pi}{4}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2\, m-1} \sum_1^\infty \frac{1}{(4n)^{2\, m}}\right\}$ V. T. 253, N. 10.

5) $\int Arctg\, \frac{x}{q} . Arccosec\, x\, d\, x = \frac{1}{2}\, \pi\, q\, l\, \frac{1+\sqrt{1+q^2}}{\sqrt{1+q^2}} + \frac{\pi}{2}\, l\, \{q + \sqrt{1+q^2}\} - \frac{\pi}{2}\, Arctg\, q$

V. T. 235, N. 10 et T. 244, N. 11.

Autre Fonction.	TABLE 79.	Lim. diverses.

1) $\int_0^1 \mathrm{B}'(x)\, d\, x = \frac{(-1)^{a-1}}{2\, a+2}\, \mathrm{B}_{2\, a+1}$ (IV, 165). 2) $\int_0^1 \mathrm{B}''(x)\, d\, x = 0$ (IV, 165).

3) $\int_0^1 \{\mathrm{B}'(x)\}^2\, d\, x = \frac{1^{2\, a+1/1}}{(2\, a+2)^{2\, a+3/1}}\, \mathrm{B}_{4\, a+3} + \left(\frac{1}{2\, a+2}\, \mathrm{B}_{2\, a+1}\right)^2$ (IV, 165).

4) $\int_0^1 \{\mathrm{B}''(x)\}^2\, d\, x = \frac{1^{2\, a/1}}{(2\, a+1)^{2\, a+2/1}}\, \mathrm{B}_{4\, a+1}$ (IV, 165).

5) $\int_0^1 d\, x\, li(x) = -\, l\, 2$ V. T. 283, N. 4.

PARTIE DEUXIÈME.

PARTIE DEUXIÈME.

F. Algébrique; Exponentielle.	TABLE 80.	Lim. 0 et 1.

1) $\int e^{qx} x\,dx = \frac{1}{q^2}\left\{(q-1)e^q+1\right\}$ (VIII, 362*).

2) $\int e^{-qx} x^a\,dx = \frac{1^{a/1}}{q^{a+1}}(1-e^{-q}) - e^{-q}\sum_1^a a^{n/-1}\frac{1}{q^n}$ (VIII, 364).

3) $\int e^{-\frac{1}{4}\pi^2x^2} x^{2a}\,dx = \sum_0^\infty \frac{1}{(2a+2n+1)\,1^{n/1}}\left(\frac{-\pi^2}{4}\right)^n$ V. T. 399, N. 20.

4) $\int (e^{px}-e^{-px})e^{-qx}\frac{dx}{x} = \frac{1}{2}l\left(\frac{q+p}{q-p}\right)^2 + Ei(p-q) - Ei\left\{-(p+q)\right\}$ (IV, 213*).

5) $\int e^{-px^2}\frac{dx}{1+x^2} = \frac{1}{2}\pi e^p - \sum_1^\infty \frac{p^n}{1^{n/1}}\sum_1^n \frac{(-1)^{m-1}}{2m-1}$ Raabe, Cr. 48, 137.

6) $\int \frac{e^x x\,dx}{(1+x)^2} = \frac{1}{2}e - 1$ (VIII, 214).

7) $\int \left(e^{1-\frac{1}{x}} - x^q\right)\frac{dx}{x(1-x)} = Z'(q)$ (IV, 169).

8) $\int \left(\frac{be^{1-x^{-b}}}{1-x^b} - \frac{x^{bq}}{1-x}\right)\frac{dx}{x} = \frac{1}{b}\sum_1^b Z'\left(q+\frac{n-1}{n}\right)$ (IV, 169).

9) $\int \left(\frac{be^{1-x^{-b}}}{1-x^b} - \frac{e^{1-\frac{1}{x}}}{1-x}\right)\frac{dx}{x} = -lb$ (IV, 169*).

10) $\int \left(\frac{be^{1-\frac{1}{x}}}{1-x} - \frac{x^q}{1-\sqrt[b]{x}}\right)\frac{dx}{x} = \sum_1^b Z'\left(q+\frac{n-1}{n}\right)$ (IV, 169).

11) $\int \frac{x}{\sqrt{e^{2q}+e^{-2q}-e^{2qx}-e^{-2qx}}}\frac{dx}{e^{qx}-e^{-qx}} = \frac{\pi}{4q^2}\frac{1}{e^q-e^{-q}} Arcsin\left(\frac{e^q-e^{-q}}{e^q+e^{-q}}\right)$ V. T. 140, N. 11.

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1) $\int e^{-qx} x^{p-1}\, dx = \frac{1^{p-1/1}}{q^p} = \frac{\Gamma(p)}{q^p}$ [$p > -1$, q aussi imaginaire] (VIII, 439).

2) $\int e^{\pm x i} x^{p-1}\, dx = e^{\pm \frac{1}{2} p \pi i}\, \Gamma(p)$ [$p < 1$] (VIII, 287).

3) $\int e^{-(p+qi)x} x^a\, dx = \frac{1^{a/1}}{(p+qi)^{a+1}}$ (VIII, 247).

4) $\int e^{-px}(1-e^{-qx})^a x^b\, dx = (-1)^b\, 1^{b/1} \sum_0^a \binom{a}{n} \frac{(-1)^n}{(p+nq)^{b+1}}$ V. T. 107, N. 7.

5) $\int e^{-px^2} x\, dx = \frac{1}{2p}$ (VIII, 246).

6) $\int e^{-px^2} x^{2a}\, dx = \frac{1^{a/2}}{(2p)^a} \frac{1}{2} \sqrt{\frac{\pi}{p}}$ (VIII, 247)

7) $\int e^{-px^2} x^{2a+1}\, dx = \frac{1^{a/1}}{2p^{a+1}}$ (VIII, 246)

[6) et 7): p aussi imaginaire].

8) $\int e^{-x^q} x^p\, dx = \frac{1}{q} \Gamma\left(\frac{p+1}{q}\right)$ (IV, 172).

9) $\int e^{-x} x^a (x+r)^a\, dx = 1^{a/1} \left\{ r + (a+1)^{1/1} \right\}^a$ $\left[\begin{array}{l}\text{Après le développement changez} \\ \{(a+1)^{1/1}\}^n \text{ en } (a+1)^{n/1}.\end{array}\right]$

$\int e^{-\frac{x^2}{2}} x^{2i+1} dx$

Malmsten, Handl. Stockh., 1841.

10) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} x^{2a}\, dx = \frac{1}{2} e^{-2q} \sqrt{\frac{\pi}{q}} \cdot \sum_0^{a+1} \frac{(a-n+1)^{2n/1}}{2^n\, 1^{n/1}} \left(\frac{1}{2q}\right)^n$ (VIII, 433).

11) $\int e^{-x^{\frac{2a}{1+2b}}} x^{a-1}\, dx = \frac{2b+1}{a\,.\,2^{b+1}}\, 1^{b/2} \sqrt{\pi}$ (IV, 173).

12) $\int (e^{px} - e^{-px}) e^{-q^2x^2} x\, dx = p e^{\frac{p^2}{4q^2}} \frac{\sqrt{\pi}}{2q^3}$ (VIII, 570).

13) $\int (e^{-x} - 1)^a e^{-px} x^{b-1}\, dx = 1^{b/1} \Delta^a (p^{-b})$ (IV, 173).

14) $\int \left\{ e^{-x} x^{q-1} - e^{-px}(1-e^{-x})^{q-1} \right\} dx = \frac{\Gamma(p+q) - \Gamma(p)}{q} \frac{\Gamma(1+q)}{\Gamma(p+q)}$ (IV, 170).

1) $\int \frac{x e^{-x}\,dx}{e^x-1} = \frac{1}{6}\pi^2 - 1$ V. T. 108, N. 7.

2) $\int \frac{x e^{-2x}\,dx}{e^{-x}+1} = 1 - \frac{1}{12}\pi^2$ V. T. 108, N. 2.

3) $\int \frac{x e^{-3x}\,dx}{e^{-x}+1} = \frac{1}{12}\pi^2 - \frac{3}{4}$ V. T. 108, N. 3.

4) $\int \frac{e^{-2ax}\,x\,dx}{1+e^{-x}} = \frac{1}{12}\pi^2 + \sum_1^{2a} \frac{(-1)^n}{n^2}$ V. T. 108, N. 4.

5) $\int \frac{e^{-2ax}x\,dx}{1+e^x} = -\frac{1}{12}\pi^2 + \sum_1^{2a-1} \frac{(-1)^{n-1}}{n^2}$ V. T. 108, N. 5.

6) $\int \frac{1+e^{-x}}{e^x-1}\,x\,dx = \frac{1}{3}\pi^2 - 1$ V. T. 108, N. 9.

7) $\int \frac{1-e^{-x}}{1+e^{-3x}}\,e^{-x}\,x\,dx = \frac{2}{27}\pi^3$ V. T. 113, N. 1.

8) $\int \frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\,x\,dx = \left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^2$ V. T. 108, N. 15.

9) $\int \frac{e^{-ax}}{1-e^{-x}}\,x^2\,dx = 2\sum_a^{\infty}\frac{1}{n^3}$ V. T. 109, N. 2.

10) $\int \frac{e^{-ax}}{1+e^{-x}}\,x^2\,dx = (-1)^a \sum_a^{\infty}\frac{(-1)^n}{n^3}$ V. T. 109, N. 1.

11) $\int \frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\,x^2\,dx = 2\left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^3 .\,Cos\,\frac{q\pi}{p}$ V. T. 109, N. 8*.

12) $\int \frac{e^{-ax}}{1-e^{-x}}\,x^3\,dx = \frac{1}{15}\pi^4 - 6\sum_1^{a-1}\frac{1}{n^4}$ V. T. 109, N. 12.

13) $\int \frac{e^{-ax}}{1+e^{-x}}\,x^3\,dx = (-1)^a \sum_a^{\infty}\frac{(-1)^n}{n^4}$ V. T. 109, N. 10.

14) $\int \frac{e^{-qx}-e^{(q-p)x}}{1+e^{-px}}\,x^3\,dx = \left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^4 .\,Cos\,\frac{q\pi}{p}.\left(6 - Sin^2\frac{q\pi}{p}\right)$ V. T. 109, N. 15.

15) $\int \frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\,x^3\,dx = 2\left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^4 .\left(1 + 2\,Cos^2\frac{q\pi}{p}\right)$ V. T. 109, N. 16.

16) $\int \frac{e^{-qx}+e^{(q-p)x}}{1+e^{-px}}\,x^4\,dx = \left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^5 .\left(24 - 20\,Sin^2\frac{q\pi}{p} + Sin^4\frac{q\pi}{p}\right)$ V. T. 109, N. 18.

17) $\int \frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\,x^4\,dx = 8\left(\frac{\pi}{p}\,Cosec\,\frac{q\pi}{p}\right)^5 .\,Cos\frac{q\pi}{p}.\left(2 + Cos^2\frac{q\pi}{p}\right)$ V. T. 109, N. 19.

F. Alg. rat. ent. mon. x^a pour a spécial; Exp. binôme $e^{ax}\pm 1$ en dén. — **TABLE 82, suite.** — Lim. 0 et ∞.

18) $\int \frac{e^{-qx}-e^{(q-p)x}}{1+e^{-px}}\, x^5\, dx = \left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^6 . Cos\frac{q\pi}{p}.\left(120-60\, Sin^2\frac{q\pi}{p}+Sin^4\frac{q\pi}{p}\right)$ V.T. 109, N. 23.

19) $\int \frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\, x^5\, dx = 8\left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^6 .\left(15-15\, Sin^2\frac{q\pi}{p}+2\, Sin^4\frac{q\pi}{p}\right)$ V. T. 109, N. 24.

20) $\int \frac{e^{-qx}+e^{(q-p)x}}{1+e^{-px}}\, x^6\, dx = \left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^7 .\left(720-840\, Sin^2\frac{q\pi}{p}+182\, Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$ V. T. 109, N. 26.

21) $\int \frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\, x^6\, dx = 16\left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^7 . Cos\frac{q\pi}{p}.\left(45-30\, Sin^2\frac{q\pi}{p}+2\, Sin^4\frac{q\pi}{p}\right)$ V.T. 109, N. 27.

22) $\int \frac{e^{-qx}-e^{(q-p)x}}{1+e^{-px}}\, x^7\, dx = \left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^8 . Cos\frac{q\pi}{p}.\left(5040-4200\, Sin^2\frac{q\pi}{p}+546\, Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$ V. T. 109, N. 31.

23) $\int \frac{e^{-qx}+e^{(q-p)x}}{1-e^{-px}}\, x^7\, dx = 16\left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^8 .\left(315-420\, Sin^2\frac{q\pi}{p}+126\, Sin^4\frac{q\pi}{p}-4\, Sin^6\frac{q\pi}{p}\right)$ V. T. 109, N. 32.

24) $\int \frac{e^{-qx}-e^{(q-p)x}}{1-e^{-px}}\, x^8\, dx = 128\left(\frac{\pi}{p}\, Cosec \frac{q\pi}{p}\right)^9 . Cos\frac{q\pi}{p}.\left(315-315\, Sin^2\frac{q\pi}{p}+63\, Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$ V. T. 109, N. 33.

F. Alg. rat. ent. mon. x^a pour a général; Exp. binôme $e^{ax}\pm 1$ en dén. — **TABLE 83.** — Lim. 0 et ∞.

1) $\int \frac{x^{2a}\, dx}{e^{qx}+1} = \frac{2^{2a}-1}{2^{2a}\, q^{2a+1}}\, 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1*.

2) $\int \frac{x^{2a-1}\, dx}{e^{qx}+1} = \frac{2^{2a-1}-1}{2a\, .\, q^{2a}}\, \pi^{2a}\, B_{2a-1}$ (VIII, 556*).

3) $\int \frac{x^{2a}\, dx}{e^{qx}-1} = \frac{1^{2a/1}}{q^{2a+1}} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 6*.

4) $\int \frac{x^{2a-1}\, dx}{e^{qx}-1} = \frac{2^{2a-2}\, \pi^{2a}}{a q^{2a}}\, B_{2a-1}$ (VIII, 556*).

5) $\int \frac{x^{p-1}\, dx}{e^{rx}-q} = \frac{1}{q r^p}\, \Gamma(p) \sum_1^\infty \frac{q^n}{n^p}$ V.T. 110, N. 8.

6) $\int \frac{x^{p-1}\, dx}{e^{qx}+1} = \frac{\Gamma(p)}{q^p} \sum_0^\infty \frac{(-1)^n}{(n+1)^p}$ V.T. 110, N. 3*.

7) $\int \frac{x^{p-1}\, dx}{e^{qx}-1} = \frac{\Gamma(p)}{q^p} \sum_0^\infty \frac{1}{(n+1)^p}$ V. T. 110, N. 6*.

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8) $\int \frac{1-e^{-bx}}{1-e^x} x^{a-1}\,dx = -1^{a/1} \sum_1^b \frac{1}{n^a}$ V. T. 110, N. 9.

9) $\int \frac{e^{-qx}}{1+e^x} x^{a-1}\,dx = \Gamma(a) \sum_1^\infty \frac{(-1)^{n-1}}{(q+n)^a}$ V. T. 110, N. 4.

10) $\int \frac{e^{-qx}}{1-e^x} x^{a-1}\,dx = -\Gamma(a) \sum_1^\infty \frac{1}{(q+n)^a}$ V. T. 110, N. 7.

11) $\int \frac{e^{qx}+1}{e^{qx}-1} x^{2a-1}\,dx = \frac{2^{2a-1}}{a} \mathrm{B}_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ (VIII, 555*).

12) $\int \frac{e^{px}+e^{-px}}{e^{qx}-1} x^{2a-1}\,dx = \sum_a^\infty \frac{(2\pi)^{2n}}{2n} \frac{1}{1^{2n-2a/1}} \left(\frac{p}{q}\right)^{2n-2a} \mathrm{B}_{2n-1}$ (VIII, 578*).

13) $\int e^{-px}(e^{-x}-1)^c \left(p+\frac{ce^{-x}}{e^{-x}-1}\right) x^q\,dx = \Gamma(q)\,\Delta^c\,(p^{-q})$ (IV, 176).

F. Alg. rat. ent. monôme; Exp. bin. $e^{ax}\pm e^{-ax}$ en dén. TABLE 84. Lim. 0 et ∞.

1) $\int \frac{x\,dx}{e^x+e^{-x}} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

2) $\int \frac{x\,dx}{e^x-e^{-x}} = \frac{1}{8}\pi^2$ V. T. 108, N. 11.

3) $\int \frac{x^2\,dx}{e^x+e^{-x}} = \frac{1}{16}\pi^3$ V. T. 109, N. 3.

4) $\int \frac{e^{-2ax}}{e^x-e^{-x}} x^2\,dx = 2\sum_a^\infty \frac{1}{(2n+1)^3}$ V. T. 109, N. 4.

5) $\int \frac{x^3\,dx}{e^x-e^{-x}} = \frac{1}{16}\pi^4$ V. T. 109, N. 13.

6) $\int \frac{e^{-2ax}}{e^x-e^{-x}} x^3\,dx = \frac{1}{16}\pi^4 - 6\sum_1^a \frac{1}{(2n-1)^4}$ V. T. 109, N. 14.

7) $\int \frac{x^4\,dx}{e^x+e^{-x}} = \frac{5}{64}\pi^5$ V. T. 109, N. 17.

8) $\int \frac{x^5\,dx}{e^x-e^{-x}} = \frac{1}{8}\pi^6$ V. T. 109, N. 22.

9) $\int \frac{x^6\,dx}{e^x+e^{-x}} = \frac{61}{256}\pi^7$ V. T. 109, N. 25.

10) $\int \frac{x^7\,dx}{e^x-e^{-x}} = \frac{17}{32}\pi^8$ V. T. 109, N. 30.

11) $\int \frac{x^q\,dx}{e^x+e^{-x}} = \Gamma(q+1)\sum_0^\infty \frac{(-1)^n}{(2n+1)^{q+1}}$ (VIII, 474).

12) $\int \frac{x^{2a}\,dx}{e^{px}+e^{-px}} = \frac{1}{2}\left(\frac{\pi}{2p}\right)^{2a+1} \mathrm{B}_{2a}$ (VIII, 555*).

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F. Alg. rat. ent. monôme; Exp. bin. $e^{ax} \pm e^{-ax}$ en dén. | TABLE 84, suite. | Lim. 0 et ∞.

13) $\int \frac{x^{2a}\,dx}{e^{px}-e^{-px}} = \frac{2^{2a+1}-1}{(2p)^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

14) $\int \frac{x^{2a-1}\,dx}{e^{px}-e^{-px}} = \frac{2^{2a}-1}{4a}\left(\frac{\pi}{p}\right)^{2a} \mathrm{B}_{2a-1}$ (VIII, 556*).

15) $\int \frac{e^{qx}-e^{-qx}}{e^{px}+e^{-px}}\, x\,dx = \frac{\pi^2}{4p^2}\, Sin\frac{q\pi}{2p} . Sec^2\frac{q\pi}{2p}$ $[p>q]$ V. T. 112, N. 3.

16) $\int \frac{e^{qx}+e^{-qx}}{e^{px}-e^{-px}}\, x\,dx = \frac{\pi^2}{4p^2}\, Sec^2\frac{q\pi}{2p}$ $[p>q]$ V. T. 112, N. 4.

17) $\int \frac{e^{qx}+e^{-qx}}{e^{px}+e^{-px}}\, x^2\,dx = \frac{\pi^3}{8p^3}\left(2\,Sec^3\frac{q\pi}{2p} - Sec\frac{q\pi}{2p}\right)$ $[p>q]$ V. T. 109, N. 7.

18) $\int \frac{e^{qx}-e^{-qx}}{e^{px}-e^{-px}}\, x^2\,dx = \frac{\pi^3}{4p^3}\, Sin\frac{q\pi}{2p} . Sec^3\frac{q\pi}{2p}$ $[p>q]$ V. T. 109, N. 8.

F. Alg. rat. ent. monôme; Exp. bin. $(e^{ax} \pm 1)^2$ en dén. | TABLE 85. | Lim. 0 et ∞.

1) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2}\, e^{-x}\, x\,dx = \frac{1}{12}a\pi^2 + \sum_1^{a-1}(-1)^n\frac{a-n}{n^2}$ V. T. 111, N. 2.

2) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2}\, x\,dx = \frac{1}{8}a\pi^2 - \sum_1^{a-1}\frac{a-n}{(2n-1)^2}$ V. T. 111, N. 5.

3) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2}\, e^{-x}\, x\,dx = \frac{1}{6}a\pi^2 - \sum_1^{a-1}\frac{a-n}{n^2}$ V. T. 111, N. 3.

4) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2}\, e^{-x}\, x^2\,dx = 2a\sum_a^\infty\frac{(-1)^{n-1}}{n^3} + 2\sum_1^{a-1}\frac{(-1)^{n-1}}{n^2}$ V. T. 111, N. 7.

5) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2}\, e^{-x}\, x^2\,dx = 2a\sum_a^\infty\frac{1}{n^3} + 2\sum_1^{a-1}\frac{1}{n^2}$ V. T. 111, N. 8.

6) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2}\, e^{-x}\, x^2\,dx = -\frac{1}{16}\pi^4 + 6\sum_1^{a-1}\frac{1}{(2n-1)^4}$ V. T. 111, N. 9.

7) $\int \frac{e^x-e^{-x}+2}{(e^x-1)^2}\, x^2\,dx = \frac{2}{3}\pi^2 - 2$ V. T. 82, N. 6.

8) $\int \frac{1+(-1)^a e^{-ax}}{(1+e^{-x})^2}\, e^{-x}\, x^3\,dx = \frac{7}{120}a\pi^4 + 6\sum_1^{a-1}(-1)^n\frac{a-n}{n^4}$ V. T. 111, N. 10.

9) $\int \frac{1-e^{-ax}}{(1-e^{-x})^2}\, e^{-x}\, x^3\,dx = \frac{1}{15}a\pi^4 - 6\sum_1^{a-1}\frac{a-n}{n^4}$ V. T. 111, N. 11.

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F. Alg. rat. ent. monôme;
Exp. bin. $(e^{ax} \pm 1)^2$ en dén. TABLE 85, suite. Lim. 0 et ∞.

10) $\int \frac{1-e^{-2ax}}{(1-e^{-2x})^2} e^{-x} x^3 dx = \frac{1}{16} a\pi^4 - 6 \sum_1^{a-1} \frac{a-n}{(2n-1)^4}$ V. T. 111, N. 12.

11) $\int \frac{e^{qx} x^p dx}{(1+e^{qx})^2} = \frac{\Gamma(p+1)}{q^{p+1}} \sum_0^\infty \frac{(-1)^n}{(1+n)^p}$ V. T. 83, N. 6.

12) $\int \frac{e^{qx} x^p dx}{(1-e^{qx})^2} = \frac{\Gamma(p+1)}{q^{p+1}} \sum_0^\infty \frac{1}{(1+n)^p}$ V. T. 83, N. 7.

13) $\int \frac{e^{-rx} x^q dx}{(1-pe^{-rx})^2} = \frac{\Gamma(q+1)}{pr^{q+1}} \sum_1^\infty \frac{p^n}{n^q}$ V. T. 83, N. 5.

14) $\int \frac{(1+q)e^x + q}{(1+e^x)^2} e^{-qx} x^a dx = \Gamma(a+1) \sum_0^\infty \frac{(-1)^n}{(q+n)^a}$ V. T. 83, N. 9. 1

15) $\int \frac{(1+q)e^x - q}{(1-e^x)^2} e^{-qx} x^a dx = \Gamma(a+1) \sum_0^\infty \frac{1}{(q+n)^a}$ V. T. 83, N. 10. 1

F. Alg. rat. ent. monôme;
Exp. bin. $(e^{ax} \pm e^{-ax})^2$ en dén. TABLE 86. Lim. 0 et ∞.

1) $\int \frac{x dx}{(e^{qx}+e^{-qx})^2} = \frac{1}{4q^2} l2$ (IV, 180).

2) $\int \frac{x^{2a} dx}{(e^{qx}+e^{-qx})^2} = \frac{2^{2a-1}-1}{(2q)^{2a+1}} \pi^{2a} B_{2a-1}$ (VIII, 590*).

3) $\int \frac{x^{2a+1} dx}{(e^{qx}+e^{-qx})^2} = \frac{2^{2a}-1}{q(4q)^{2a+1}} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 83, N. 1.

4) $\int \frac{x^{2a+1} dx}{(e^{qx}-e^{-qx})^2} = \frac{1^{2a+1/1}}{(2q)^{2a+2}} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 83, N. 3.

5) $\int \frac{x^{2a} dx}{(e^{qx}-e^{-qx})^2} = \frac{\pi^{2a}}{4q^{2a+1}} B_{2a-1}$ (VIII, 590*).

6) $\int \frac{x^p dx}{(e^{qx}+e^{-qx})^2} = \frac{\Gamma(p+1)}{(2q)^{p+1}} \sum_0^\infty \frac{(-1)^n}{(n+1)^p}$ V. T. 83, N. 6.

7) $\int \frac{x^p dx}{(e^{qx}-e^{-qx})^2} = \frac{\Gamma(p+1)}{(2q)^{p+1}} \sum_0^\infty \frac{1}{(n+1)^p}$ V. T. 83, N. 7.

8) $\int \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^2} x dx = \frac{\pi}{4q^2}$ V. T. 27, N. 2.

9) $\int \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^{p+1}} x dx = \frac{\Gamma(p)\sqrt{\pi}}{2^{2p+1} pq^2 \Gamma(p+\frac{1}{2})}$ V. T. 27, N. 17.

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10) $\int \frac{e^{qx} - e^{-qx}}{(e^{qx} + e^{-qx})^2} x^2\, dx = \frac{1}{4q^3} l2$ V. T. 86, N. 1.

11) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^2\, dx = \frac{\pi^2}{4q^3}$ V. T. 84, N. 14.

12) $\int \frac{e^{qx} - e^{-qx}}{(e^{qx} + e^{-qx})^2} x^{2a+1}\, dx = \frac{2a+1}{2q} \left(\frac{\pi}{2q}\right)^{2a+1} \mathrm{B}_{2a}$ V. T. 84, N. 12.

13) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^{2a+1}\, dx = \frac{2^{2a+1} - 1}{q(2q)^{2a+1}} 1^{2a+1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 84, N. 13.

14) $\int \frac{e^{qx} + e^{-qx}}{(e^{qx} - e^{-qx})^2} x^{2a}\, dx = \frac{2^{2a} - 1}{2q} \left(\frac{\pi}{q}\right)^{2a} \mathrm{B}_{2a-1}$ V. T. 84, N. 14.

15) $\int \frac{e^{x} - e^{-x}}{(e^{x} + e^{-x})^2} x^{p}\, dx = \Gamma(p+1) \sum_0^\infty \frac{(-1)^n}{(2n+1)^p}$ V. T. 84, N. 11.

F. Alg. rat. ent. binôme; Exp. binôme en dén. **TABLE 87.** Lim. 0 et ∞.

1) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{\pi x}+1} = \frac{1}{2a+1}$ (IV, 181).

2) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\pi x}+1} = \frac{1}{2a} \left\{1 + (-1)^a 2^{2a} \mathrm{B}_{2a-1}\right\}$ (IV, 181).

3) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\pi x}-1} = \frac{2a-1}{4a} + (-1)^a \frac{2^{2a-1} - 1}{2a} \mathrm{B}_{2a-1}$ (VIII, 579).

4) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{2\pi x}-1} = \frac{1}{2} \frac{2a-1}{2a+1}$ (IV, 181).

5) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{2\pi x}-1} = \frac{a-1}{2a} + (-1)^{a-1} \frac{1}{2a} \mathrm{B}_{2a-1}$ (VIII, 579).

6) $\int \frac{(1+xi)^{2a-1} + (1-xi)^{2a-1}}{e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x}} dx = (-1)^{a-1} \frac{2^{2a} - 1}{2a} 2^{2a} \mathrm{B}_{2a-1}$ (IV, 182).

7) $\int \frac{(1+xi)^{2a} - (1-xi)^{2a}}{i} \frac{dx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} = (-1)^{a+1} \mathrm{B}_{2a} + 1$ (IV, 181).

8) $\int \frac{(1+xi)^{2a-1} - (1-xi)^{2a-1}}{i} \frac{dx}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} = 1$ (IV, 182).

1) $\int \frac{x\,dx}{e^x+e^{-x}-1} = \frac{4}{27}\pi^2$ V. T. 113, N. 3.

2) $\int \frac{x e^{-x}\,dx}{e^x+e^{-x}-1} = \frac{5}{108}\pi^2$ V. T. 113, N. 4.

3) $\int \frac{x^2\,dx}{e^x+e^{-x}+2\,Cos\,\lambda} = \frac{1}{6}\lambda\,Cosec\,\lambda\,.\,(\pi^2-\lambda^2)$ V. T. 113, N. 7.

4) $\int \frac{x^4\,dx}{e^x+e^{-x}+2\,Cos\,\lambda} = \frac{1}{5}\lambda\,Cosec\,\lambda\,.\,(\pi^2-\lambda^2)(7\pi^2-3\lambda^2)$ V. T. 113, N. 8. 30

5) $\int \frac{x^{2a}\,dx}{e^x+e^{-x}-2\,Cos\,2p\pi} = 1^{2a/1}\,Cosec\,2p\pi\,.\,\sum_1^\infty \frac{Sin\,2np\pi}{n^{2a+1}}$ (VIII, 475).

6) $\int \frac{Cos\,2p\pi - e^{-x}}{e^x+e^{-x}-2\,Cos\,2p\pi}\,x^{2a+1}\,dx = 1^{2a+1/1}\sum_1^\infty \frac{Cos\,2np\pi}{n^{2a+2}}$ (VIII, 476).

7) $\int \frac{1+pe^{-x}}{e^x+e^{-x}+1}\,x\,dx = \frac{4+p}{54}\pi^2$ V. T. 113, N. 1, 2.

8) $\int \frac{e^x\,Cos\,\lambda - 1}{e^{2x}+1-2e^x\,Cos\,\lambda}\,x\,dx = \frac{1}{6}\pi^2 - \frac{1}{2}\pi\lambda + \frac{1}{4}\lambda^2$ (IV, 183).

9) $\int \frac{e^x-e^{-x}}{e^{2x}+e^{-2x}+2p}\,x\,dx = \frac{\pi}{2\sqrt{2(p-1)}}\,l\,\frac{\sqrt{p-1}+\sqrt{p+1}-\sqrt{2}}{\sqrt{p-1}-\sqrt{p+1}+\sqrt{2}}\,[p^2>1], = \frac{1}{8}\pi\,Arccos\,p\,.\sqrt{\frac{2}{1-p}}\,[p^2<1]$ (IV, 183).

10) $\int \frac{Cos\,\lambda - pe^{-x}}{e^x+p^2e^{-x}-2p\,Cos\,\lambda}\,e^{(1-q)x}\,x^{r-1}\,dx = \Gamma(r)\sum_1^\infty \frac{p^{n-1}\,Cos\,n\lambda}{(q+n-1)^r}$ V. T. 113, N. 11.

11) $\int \frac{e^{qx}-e^{-qx}}{(e^{qx}-2\,Cos\,\lambda+e^{-qx})^2}\,x\,dx = \frac{1}{2q^2}\lambda\,Cosec\,\lambda$ V. T. 27, N. 22.

12) $\int \frac{e^x-e^{-x}}{(e^x+e^{-x}-1)^2}\,x^2\,dx = \frac{8}{27}\pi^2$ V. T. 88, N. 1.

13) $\int \frac{e^x-e^{-x}}{(e^x+e^{-x}+2\,Cos\,\lambda)^2}\,x^3\,dx = \frac{1}{2}\lambda\,Cosec\,\lambda\,.\,(\pi^2-\lambda^2)$ V. T. 88, N. 3.

14) $\int \frac{e^x-e^{-x}}{(e^x+e^{-x}-2\,Cos\,2p\pi)^2}\,x^{2a+1}\,dx = 1^{2a+1/1}\,Cosec\,2p\pi\,.\,\sum_1^\infty \frac{Sin\,2np\pi}{n^{2a+1}}$ V. T. 88, N. 5.

15) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x+i)}\right\}}{i}\,\frac{dx}{e^{\pi x}-1} =$

$$= (-1)^a\sum_a^\infty\left\{\frac{2^{2n-1}-1}{n}\,B_{2n-1}+(-1)^n\frac{2n-1}{2n}\right\}\frac{p^{2n-2a}}{1^{2n-2a/1}} \text{ (VIII, 578).}$$

16) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x+i)}\right\}}{i}\,\frac{dx}{e^{2\pi x}-1} =$

$$= (-1)^a\sum_a^\infty\left\{\frac{1}{n}\,B_{2n-1}+(-1)^{n-1}\frac{n-1}{n}\right\}\frac{p^{2n-2a}}{1^{2n-2a/1}} \text{ (VIII, 578).}$$

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1) $\int e^{-q^2x^2-\frac{p^2}{x^2}}\frac{dx}{x^2}=\frac{1}{2p}e^{-2pq}\sqrt{\pi}$ (VIII, 518*).

2) $\int (e^{-px}-e^{-qx})\frac{dx}{x}=l\frac{q}{p}$ (VIII, 337).

3) $\int (e^{-qx^r}-e^{-px^r})\frac{dx}{x}=\frac{1}{r}l\frac{p}{q}$ (VIII, 435*).

4) $\int (e^{-px}-e^{-qx})e^{-rxi}\frac{dx}{x}=l\frac{q+ri}{p+ri}$ (IV, 185).

5) $\int (e^{-x^2}-e^{-x})\frac{dx}{x}=\frac{1}{2}\mathrm{A}$ (VIII, 682).

6) $\int (e^{-x^4}-e^{-x^2})\frac{dx}{x}=\frac{1}{4}\mathrm{A}$ (VIII, 682).

7) $\int (e^{-x^4}-e^{-x})\frac{dx}{x}=\frac{3}{4}\mathrm{A}$ (VIII, 682).

8) $\int (e^{-x^{2^a}}-e^{-x})\frac{dx}{x}=\left(1-\frac{1}{2^a}\right)\mathrm{A}$ (VIII, 682).

9) $\int (e^{-x^p}-e^{-x^q})\frac{dx}{x}=\frac{p-q}{pq}\mathrm{A}$ (VIII, 702*).

10) $\int (e^{-x}-1)^b e^{-ax}\frac{dx}{x}=-\Delta^b.la$ (IV, 185).

11) $\int (e^{-px}-e^{-qx})(e^{-rx}-e^{-sx})e^{-x}\frac{dx}{x}=l\frac{(p+s+1)(q+r+1)}{(p+r+1)(q+s+1)}$ V. T. 123, N. 7.

12) $\int (1-e^{-px})(1-e^{-qx})e^{-x}\frac{dx}{x^2}=(p+q+1)l(p+q+1)-(p+1)l(p+1)-(q+1)l(q+1)$

V. T. 124, N. 2.

13) $\int (1-e^{-px})^2e^{-qx}\frac{dx}{x^2}=(2p+q)l(2p+q)-2(p+q)l(p+q)+qlq$ V. T. 124, N. 3.

14) $\int (1-e^{-px})(1-e^{-qx})(1-e^{-rx})e^{-x}\frac{dx}{x^2}=(p+q+1)l(p+q+1)+(p+r+1)l(p+r+1)+$

$+(q+r+1)l(q+r+1)-(p+1)l(p+1)-(q+1)l(q+1)-(r+1)l(r+1)-$

$-(p+q+r)l(p+q+r)$ V. T. 124, N. 4.

15) $\int (e^{-x}-1)^a e^{-px}\frac{dx}{x^2}=\Delta^a.plp$ (IV, 186).

16) $\int (1-e^{-px})^a e^{-qx}\frac{dx}{x^2}=\sum_0^a(-1)^n\binom{a}{n}(q+np)l(q+np)$ V. T. 124, N. 6.

17) $\int (e^{-qx}-1)^a(e^{-rx}-1)^b e^{-px}\frac{dx}{x^2}=\sum_0^a(-1)^n\binom{a}{n}\sum_0^b(-1)^m\binom{b}{m}\{(b-m)r+(a-n)q+p\}$

$l\{(b-m)r+(a-n)q+p\}$ V. T. 124, N. 8.

18) $\int \{(p-r)e^{-qx}+(r-q)e^{-px}+(q-p)e^{-rx}\}\frac{dx}{x^2}=(r-q)plp+(p-r)qlq+(q-p)rlr$

V. T. 124, N. 9.

19) $\int \left\{\left(\frac{1}{2}+\frac{1}{x}\right)e^{-x}-\frac{1}{x}e^{-\frac{1}{2}x}\right\}\frac{dx}{x}=\frac{1}{2}(l2-1)$ (IV, 186).

20) $\int\left\{e^{-x}+\frac{1}{x}e^{-x}-\frac{1}{x}\right\}\frac{dx}{x}=-1$ (IV, 186).

21) $\int\left\{pe^{-x}+\frac{1}{x}e^{-px}-qe^{-x}-\frac{1}{x}e^{-qx}\right\}\frac{dx}{x}=plp-p-qlq+q$ (IV, 186).

22) $\int\left\{\left(p-\frac{1}{2}\right)e^{-x}+\frac{x+2}{2x}\left(e^{-px}-e^{-\frac{1}{2}x}\right)\right\}\frac{dx}{x}=\left(p-\frac{1}{2}\right)(lp-1)$ (IV, 186).

23) $\int\left\{1+\frac{x+2}{2x}(1-e^{-x})\right\}e^{-qx}\frac{dx}{x}=-1+\left(q+\frac{1}{2}\right)l\frac{q+1}{q}$ (IV, 186).

24) $\int\left\{qe^{-x}-\frac{1}{x}(1-e^{-qx})\right\}\frac{dx}{x}=qlq-q$ (VIII, 585).

25) $\int\left\{e^{-x}-e^{-2x}-\frac{1}{x}e^{-2x}\right\}\frac{dx}{x}=1-l2$ (IV, 186).

26) $\int\left\{(p-q)e^{-bx}-\frac{1}{ax}\left(e^{-apx}-e^{-aqx}\right)\right\}\frac{dx}{x}=plp-qlq-(p-q)\left\{1+l\frac{b}{a}\right\}$

27) $\int\left\{(p-q)e^{-rx}-\frac{1}{x}\left(e^{-px}-e^{-qx}\right)\right\}\frac{dx}{x}=plp-qlp-(p-q)\{1+lr\}$

28) $\int\left\{\frac{1}{a}\left(e^{-apx}-e^{-aqx}\right)-\frac{1}{b}\left(e^{-bpx}-e^{-bqx}\right)\right\}\frac{dx}{x^2}=(q-p)\,l\frac{b}{a}$

Sur 26) à 28) voyez Winckler, Sitz. Ber. Wien. B. 21, 389.

29) $$\int\left\{\frac{e^{-px}}{(p-q)(p-r)(p-s)}+\frac{e^{-qx}}{(q-p)(q-r)(q-s)}+\frac{e^{-rx}}{(r-p)(r-q)(r-s)}+\frac{e^{-sx}}{(s-p)(s-q)(s-r)}\right\}\frac{dx}{x^3}=$$
$$=\frac{\frac{1}{2}p^2\,lp}{(p-q)(p-r)(p-s)}+\frac{\frac{1}{2}q^2\,lq}{(q-p)(q-r)(q-s)}+\frac{\frac{1}{2}r^2\,lr}{(r-p)(r-q)(r-s)}+\frac{\frac{1}{2}s^2\,ls}{(s-p)(s-q)(s-r)}$$
V. T. 124, N. 16.

30) $\int(1-e^{-px})^a e^{-qx}\frac{dx}{x^3}=\frac{1}{2}\sum_0^a(-1)^{n-1}\binom{a}{n}(q+np)^2\,l(q+np)$ V. T. 124, N. 14.

31) $$\int(1-e^{-px})^a(1-e^{-qx})e^{-x}\frac{dx}{x^3}=\frac{1}{2}\sum_0^a(-1)^n\binom{a}{n}(q+np+1)^2\,l(q+np+1)+$$
$$+\frac{1}{2}\sum_1^a(-1)^{n-1}\binom{a}{n}(pn+1)^2\,l(pn+1)$$ V. T. 124, N. 15.

32) $\int\left\{\frac{1}{2}q^2e^{-x}-\frac{1}{x}q+\frac{1}{x^2}(1-e^{-qx})\right\}\frac{dx}{x}=\frac{1}{2}q^2\,lq-\frac{3}{4}q^2$ (IV, 187).

33) $\int\left\{\frac{1}{6}q^2 e^{-x}-\frac{1}{2x}q^2+\frac{1}{x^2}q-\frac{1}{x^3}(1-e^{-qx})\right\}\frac{dx}{x}=\frac{1}{6}q^3\,lq-\frac{11}{36}q^3$ (IV, 187).

34) $\int\left\{\left(1+\frac{r}{qx}\right)^{qx}-\left(1+\frac{r}{px}\right)^{px}\right\}\frac{dx}{x}=(e^r-1)\,l\frac{q}{p}$ (VIII, 280).

F. Alg. rat. fract. à dén. x^a pour a général; Exp. en num. TABLE 90. Lim. 0 et ∞.

1) $\int e^{-qx}\frac{dx}{x^p}=q^{p-1}\Gamma(1-p)\;[p<1]$ (VIII, 439).

2) $\int e^{-px^2-\frac{q}{x^2}}\frac{dx}{x^{2a}}=\frac{1}{2}\left(\frac{p}{q}\right)^{\frac{1}{2}a}e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{p}}\cdot\sum_0^\infty\frac{(a-n)^{2n/1}}{1^{n/1}}\left(\frac{1}{4\sqrt{pq}}\right)^n$ (IV, 210*).

3) $\int(e^{-qx}-1)\frac{dx}{x^{p+1}}=-\frac{1}{p}q^p\Gamma(1-p)$

4) $\int(e^{-qx}-1+qx)\frac{dx}{x^{p+2}}=\frac{1}{p(p+1)}q^{p+1}\Gamma(1-p)$

5) $\int\left(e^{-qx}-1+qx-\frac{1}{2}q^2x^2\right)\frac{dx}{x^{p+3}}=\frac{q^{p+2}}{p(p+1)(p+2)}\Gamma(1-p)$

$\left.\right\}$ $[0<p<1]$ Liouville, P. 21, 71.

6) $\int(e^{-qx}-e^{-rx})\frac{dx}{x^{p+1}}=\frac{1}{p}\Gamma(1-p)(r^p-q^p)\;[p<1]$ (IV, 187).

7) $\int(e^{-ax^c}-e^{-bx^c})\frac{dx}{x^c}=\frac{1}{c-1}\Gamma\left(\frac{1}{c}\right)\left\{b^{1-\frac{1}{c}}-a^{1-\frac{1}{c}}\right\}\;[b>a>0]$ (IV, 187).

8) $\int(e^{-x}-1)^a e^{-bx}\frac{dx}{x^{q+1}}=\frac{-\pi}{Sin\,q\pi\,.\,\Gamma(q+1)}\Delta^a.b^q\,[q<a],=\frac{(-1)^q}{\Gamma(q+1)}\Delta^a.b^q\,lb\,[q\text{ entier}]$ (IV, 187).

9) $\int(e^{-rx}-1)^a e^{-prx}\frac{dx}{x^{q+1}}=\frac{(-1)^{q+1}r^q}{\Gamma(q+1)}\Delta^a.p\,lp$ V. T. 124, N. 19.

10) $\int\{e^{-bx}(e^{-x}-1)^a-(-x)^a\}\frac{dx}{x^{q+1}}=-\frac{\pi}{\Gamma(q+1)}Cosec\,q\pi\,.\,\Delta^a\,.\,b^q$ (IV, 188).

11) $\int\left\{e^{-bx}(e^{-x}-1)^{a-1}-(-x)^{a-1}\left(1-\frac{1}{2}(2b+a-1)x\right)\right\}\frac{dx}{x^{q+1}}=-\frac{\pi}{\Gamma(q+1)}Cosec\,q\pi.\Delta^{a-1}.b^q$ (IV, 188).

12) $\int\left\{e^{-bx}(e^{-x}-1)^{a-2}-(-x)^{a-2}\left(1-\frac{1}{2}(2b+a-2)x+\frac{1}{12}\{6b(b+a-2)+(a-2)(3a-7)\}x^2\right)\right\}\frac{dx}{x^{q+1}}=$

$=-\frac{\pi}{\Gamma(q+1)}Cosec\,q\pi\,.\,\Delta^{a-2}.b^q$ (IV, 188). Dans 10) à 12) on a $a<q<a+1$.

1) $\int e^{-px}\frac{dx}{q+x}=-e^{pq}\,Ei(-pq)$ (VIII, 297).

2) $\int e^{pxi}\frac{dx}{xi+q}=\pi e^{-pq}+ie^{-pq}\,Ei(pq)$ (IV, 188).

3) $\int e^{-px}\frac{x^a\,dx}{q+x}=(-1)^{a+1}q^a e^{pq}\,Ei(-pq)+\frac{1}{p^a}\sum_1^a 1^{a-n/1}(-pq)^{n-1}$ (IV, 188).

4) $\int e^{-px}\frac{dx}{q-x}=e^{-pq}\,Ei(pq)$ (VIII, 297).

5) $\int e^{pxi}\frac{dx}{xi-q}=ie^{pq}\,Ei(-pq)$ (IV, 189).

6) $\int e^{-px}\frac{x^a\,dx}{q-x}=q^a e^{-pq}\,Ei(pq)-\frac{1}{p^a}\sum_1^a 1^{a-n/1}(pq)^{n-1}$ (IV, 189).

7) $\int e^{-px}\frac{dx}{q^2+x^2}=\frac{1}{q}\left\{Ci(pq)\,.\,Sin\,pq-Si(pq)\,.\,Cos\,pq+\frac{1}{2}\pi\,Cos\,pq\right\}$ (VIII, 524).

8) $\int e^{-px}\frac{x\,dx}{q^2+x^2}=-Ci(pq)\,.\,Cos\,pq-Si(pq)\,.\,Sin\,pq+\frac{1}{2}\pi\,Sin\,pq$ (VIII, 524).

9) $\int e^{pxi}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-pq}-\frac{1}{2qi}\{e^{-pq}\,Ei(pq)-e^{pq}\,Ei(-pq)\}$ (IV, 189).

10) $\int e^{pxi}\frac{x\,dx}{q^2+x^2}=\frac{1}{2}\pi ie^{-pq}-\frac{1}{2}\{e^{-pq}\,Ei(pq)+e^{pq}\,Ei(-pq)\}$ (IV, 189).

11) $\int e^{-px}\frac{x^{2a}\,dx}{q^2+x^2}=(-1)^a q^{2a-1}\left\{Ci(pq)\,.\,Sin\,pq-Si(pq)\,.\,Cos\,pq+\frac{1}{2}\pi\,Cos\,pq\right\}+$
$+\frac{1}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(-p^2q^2)^{n-1}$ (IV, 189).

12) $\int e^{-px}\frac{x^{2a+1}\,dx}{q^2+x^2}=(-1)^{a-1}q^{2a}\left\{Ci(pq)\,.\,Cos\,pq+Si(pq)\,.\,Sin\,pq-\frac{1}{2}\pi\,Sin\,pq\right\}+$
$+\frac{1}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(-p^2q^2)^{n-1}$ (IV, 189).

13) $\int e^{-px^2}\frac{dx}{1+x^2}=e^{\frac{1}{2}p}\sqrt{\pi}.\left\{2e^{\frac{1}{2}p}\sqrt{\pi}-\sqrt{\sum_1^\infty\frac{p^n}{1^{n/1}}\sum_1^n\frac{(-1)^{m-1}}{2m-1}}\right\}$ Raabe, Cr. B. 48, 127.

14) $\int e^{-px}\frac{dx}{q^2-x^2}=\frac{1}{2q}\{e^{-pq}\,Ei(pq)-e^{pq}\,Ei(-pq)\}$ (VIII, 297).

15) $\int e^{-px}\frac{x\,dx}{q^2-x^2}=\frac{1}{2}\{e^{-pq}\,Ei(pq)+e^{pq}\,Ei(-pq)\}$ (VIII, 297).

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16) $\int e^{-px}\frac{x^{2a}\,dx}{q^2-x^2}=\frac{1}{2}q^{2a-1}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)\right\}-\frac{1}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(p^2q^2)^{n-1}$ (IV, 190).

17) $\int e^{-px}\frac{x^{2a+1}\,dx}{q^2-x^2}=\frac{1}{2}q^{2a}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)\right\}-\frac{1}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(p^2q^2)^{n-1}$ (IV, 190).

18) $\int e^{-px}\frac{dx}{q^4-x^4}=\frac{1}{4q^3}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)+2\,Ci(pq).Sin\,pq-2\,Si(pq).Cos\,pq+\pi\,Cos\,pq\right\}$ V. T. 91, N. 7, 14.

19) $\int e^{-px}\frac{x\,dx}{q^4-x^4}=\frac{1}{4q^2}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)-2\,Ci(pq).Cos\,pq-2\,Si(pq).Sin\,pq+\pi\,Sin\,pq\right\}$ V. T. 91, N. 8, 15.

20) $\int e^{-px}\frac{x^2\,dx}{q^4-x^4}=\frac{1}{4q}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)-2\,Ci(pq).Sin\,pq+2\,Si(pq).Cos\,pq-\pi\,Cos\,pq\right\}$ V. T. 91, N. 7, 14.

21) $\int e^{-px}\frac{x^3\,dx}{q^4-x^4}=\frac{1}{4}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)+2\,Ci(pq).Cos\,pq+2\,Si(pq).Sin\,pq-\pi\,Sin\,pq\right\}$ V. T. 91, N. 8, 15.

22) $\int e^{-px}\frac{x^{4a}\,dx}{q^4-x^4}=\frac{1}{4}q^{4a-3}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)+2\,Ci(pq).Sin\,pq-2\,Si(pq).Cos\,pq+\pi\,Cos\,pq\right\}-$
$-\frac{1}{p^{4a-3}}\sum_1^a 1^{4a-4n/1}(p^4q^4)^{n-1}$ V. T. 91, N. 11, 16.

23) $\int e^{-px}\frac{x^{4a+1}\,dx}{q^4-x^4}=\frac{1}{4}q^{4a-2}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)-2\,Ci(pq).Cos\,pq-2\,Si(pq).Sin\,pq+\pi\,Sin\,pq\right\}-$
$-\frac{1}{p^{4a-2}}\sum_1^a 1^{4a-4n+1/1}(p^4q^4)^{n-1}$ V. T. 91, N. 12, 17.

24) $\int e^{-px}\frac{x^{4a+2}\,dx}{q^4-x^4}=\frac{1}{2}q^{4a-1}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)-2\,Ci(pq).Sin\,pq+2\,Si(pq).Cos\,pq-\pi\,Cos\,pq\right\}-$
$-\frac{1}{p^{4a-1}}\sum_1^a 1^{4a-4n+2/1}(p^4q^4)^{n-1}$ V. T. 91, N. 11, 16.

25) $\int e^{-px}\frac{x^{4a+3}\,dx}{q^4-x^4}=\frac{1}{4}q^{4a}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)+2\,Ci(pq).Cos\,pq+2\,Si(pq).Sin\,pq-\pi\,Sin\,pq\right\}-$
$-\frac{1}{p^{4a}}\sum_1^a 1^{4a-4n+3/1}(p^4q^4)^{n-1}$ V. T. 91, N. 12, 17.

26) $\int e^{-x}\frac{x^a\,dx}{1+x^b}=\sum_0^\infty(-1)^n\,1^{a+nb/1}$ De Morgan, Int. Calc.

1) $\int e^{-px}\frac{dx}{(q+x)^2}=\frac{1}{q}+e^{pq}\,Ei(-pq)$ V. T. 31, N. 16. + P

2) $\int e^{-px}\frac{dx}{(q+x)^a}=(-1)^a\frac{p^{a-1}}{1^{a-1/1}}\,e^{pq}\,Ei(-pq)+\frac{1}{1^{a-1/1}\,q^{a-1}}\sum_1^{a-1}1^{a-n-1/1}(-pq)^{n-1}$ (IV, 190).

3) $\int e^{-px}\frac{x^{q-1}\,dx}{(1+rx)^a}=\frac{1}{p^q}\Gamma(q)\sum_0^{\infty}\frac{a^{n/1}}{1^{n/1}}\frac{q^{n/1}}{p^n}r^n$ (VIII, 513).

4) $\int e^{-px}\frac{dx}{(q-x)^2}=-\frac{1}{q}+e^{-pq}\,Ei(pq)$ V. T. 31, N. 14. + P

5) $\int e^{-px}\frac{dx}{(q-x)^a}=\frac{p^{a-1}}{1^{a-1/1}}\,e^{-pq}\,Ei(pq)-\frac{1}{1^{a-1/1}\,q^{a-1}}\sum_1^{a-1}1^{a-n-1/1}(pq)^{n-1}$ (IV, 190).

6) $\int e^{-px}\frac{dx}{(q^2+x^2)^2}=\frac{1}{2q^3}\Big\{Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\,Cos\,pq+pq\Big(Ci(pq).Cos\,pq+$
$+Si(pq).Sin\,pq-\frac{1}{2}\pi\,Sin\,pq\Big)\Big\}$ (IV, 191).

7) $\int e^{-px}\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{2q^2}\Big\{1-pq\Big(Ci(pq).Sin\,pq-Si(pq).Cos\,pq+\frac{1}{2}\pi\,Cos\,pq\Big)\Big\}$ (IV, 191).

8) $\int e^{-px}\frac{dx}{(q^2-x^2)^2}=\frac{1}{4q^3}\{(pq-1)e^{pq}\,Ei(-pq)+(1+pq)e^{-pq}\,Ei(pq)\}$ (IV, 191).

9) $\int e^{-px}\frac{x\,dx}{(q^2-x^2)^2}=\frac{1}{4q^2}\Big(1+pq\,\{e^{-pq}\,Ei(pq)-e^{pq}\,Ei(-pq)\}\Big)$ (IV, 191).

10) $\int\Big(e^{-px}-\frac{1}{1+qx}\Big)\frac{dx}{x}=-A+l\frac{q}{p}$ (VIII, 533).

11) $\int\Big(e^{-px}-\frac{1}{1+q^2x^2}\Big)\frac{dx}{x}=-A+l\frac{q}{p}$ (VIII, 534).

12) $\int\Big(e^{-x^2}-\frac{1}{1+x^2}\Big)\frac{dx}{x}=-\frac{1}{2}A$ (VIII, 682).

13) $\int\Big(e^{-x^{2^a}}-\frac{1}{1+x^2}\Big)\frac{dx}{x}=-\frac{1}{2^a}A$ (VIII, 702).

14) $\int\Big(e^{-x^{2^a}}-\frac{1}{1+x^{2^{a+1}}}\Big)\frac{dx}{x}=-\frac{1}{2^a}A$ (VIII, 702).

15) $\int\Big(e^{-x}-\frac{1}{(1+x)^p}\Big)\frac{dx}{x}=Z'(p)$ (VIII, 601).

16) $\int\Big(\frac{e^{-x}-1}{x}+\frac{1}{1+x}\Big)\frac{dx}{x}=A-1$ (IV, 193).

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17) $\int\left\{\frac{e^{-xi}}{\left(1-\frac{1}{q}xi\right)^q}+\frac{e^{xi}}{\left(1+\frac{1}{q}xi\right)^q}\right\}dx=\frac{2\pi}{\Gamma(q)}\left(\frac{q}{e}\right)^q$ (IV, 193).

18) $\int e^{-px}\frac{dx}{q^3+q^2x+qx^2+x^3}=\frac{1}{2q^2}\left\{Ci(pq).(Sin\,pq+Cos\,pq)+\left\{Si(pq)-\frac{1}{2}\pi\right\}(Sin\,pq-Cos\,pq)-\right.$
$\left.-e^{pq}Ei(-pq)\right\}$ V. T. 91, N. 1, 7, 8.

19) $\int e^{-px}\frac{x\,dx}{q^3+q^2x+qx^2+x^3}=\frac{1}{2q}\left\{Ci(pq).(Sin\,pq-Cos\,pq)+\left(\frac{1}{2}\pi-Si(pq)\right)(Sin\,pq+Cos\,pq)+\right.$
$\left.+e^{pq}Ei(-pq)\right\}$ V. T. 91, N. 1, 7, 8.

20) $\int e^{-px}\frac{x^2\,dx}{q^3+q^2x+qx^2+x^3}=\frac{1}{2}\left\{-Ci(pq).(Sin\,pq+Cos\,pq)+\left(\frac{1}{2}\pi-Si(pq)\right)(Sin\,pq-Cos\,pq)-\right.$
$\left.-e^{pq}Ei(-pq)\right\}$ V. T. 91, N. 1, 7, 8.

21) $\int e^{-px}\frac{dx}{q^3-q^2x+qx^2-x^3}=\frac{1}{2q^2}\left\{Ci(pq).(Sin\,pq-Cos\,pq)-\left(Si(pq)-\frac{1}{2}\pi\right)(Sin\,pq+Cos\,pq)+\right.$
$\left.+e^{-pq}Ei(pq)\right\}$ V. T. 91, N. 4, 7, 8.

22) $\int e^{-px}\frac{x\,dx}{q^3-q^2x+qx^2-x^3}=\frac{1}{2q}\left\{-Ci(pq).(Sin\,pq+Cos\,pq)+\left(\frac{1}{2}\pi-Si(pq)\right)(Sin\,pq-Cos\,pq)+\right.$
$\left.+e^{-pq}Ei(pq)\right\}$ V. T. 91, N. 4, 7, 8.

23) $\int e^{-px}\frac{x^2\,dx}{q^3-q^2x+qx^2-x^3}=\frac{1}{2}\left\{Ci(pq).(Cos\,pq-Sin\,pq)+\left(Si(pq)-\frac{1}{2}\pi\right)(Sin\,pq+Cos\,pq)+\right.$
$\left.+e^{-pq}Ei(pq)\right\}$ V. T. 91, N. 4, 7, 8.

F. Alg. rat. fract. à dén. monôme; Exp. bin. $e^{-x}\pm 1$ en dén. A un terme. TABLE 93. Lim. 0 et ∞.

1) $\int\frac{1}{e^x+1}\frac{dx}{x}=\infty=$ 2) $\int\frac{1}{e^x-1}\frac{dx}{x}$ (VIII, 542).

3) $\int\frac{1-e^{-x}}{e^x+1}\frac{dx}{x}=l\frac{\pi}{2}$ V. T. 127, N. 3.

4) $\displaystyle\int \frac{1-e^{(1-q)x}}{e^x+1}\frac{dx}{x} = l\left\{\frac{\Gamma\left(\frac{q+1}{2}\right)}{\Gamma\left(\frac{q}{2}\right)}\sqrt{\pi}\right\}$ V. T. 127, N. 4.

5) $\displaystyle\int \frac{e^{-qx}-e^{(q-1)x}}{e^{-x}+1}\frac{dx}{x} = l\,Cot\frac{q\pi}{2}$ V. T. 130, N. 6.

6) $\displaystyle\int \frac{e^{-qx}-e^{-px}}{e^{-x}+1}\frac{dx}{x} = l\frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{p}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ V. T. 127, N. 5.

7) $\displaystyle\int \frac{e^{-px}-e^{(p-q)x}}{e^{-qx}+1}\frac{dx}{x} = l\,Cot\frac{p\pi}{2q}$ V. T. 130, N. 9.

8) $\displaystyle\int \frac{1-e^{-qx}}{e^{-x}+1}e^{-(p+1)x}\frac{dx}{x} = l\frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}{\Gamma\left(\frac{p}{2}+1\right)\Gamma\left(\frac{p+q+1}{2}\right)}$ V. T. 127, N. 6.

9) $\displaystyle\int \frac{(e^{qx}-e^{-qx})^2}{e^x+1}\frac{dx}{x} = -l(q\pi\,Cot\,q\pi)$ V. T. 130, N. 7.

10) $\displaystyle\int \frac{e^{-px}-e^{-qx}}{e^{-rx}+1}\,\frac{1+e^{(p+q-r)x}}{x}dx = l\left(Tg\frac{q\pi}{2r}.Cot\frac{p\pi}{2r}\right)$ V. T. 130, N. 10.

11) $\displaystyle\int \frac{e^{-px}-e^{-qx}}{e^{-x}+1}\,\frac{1+e^{-(2a+1)x}}{x}dx = l\frac{\left(\frac{q}{2}\right)^{a+1/1}\left(\frac{p+1}{2}\right)^{a/1}}{\left(\frac{q+1}{2}\right)^{a/1}\left(\frac{p}{2}\right)^{a+1/1}}$ V. T. 127, N. 7.

12) $\displaystyle\int \frac{1-e^{-px}}{1-e^{x}}\,\frac{1-e^{-qx}}{x}dx = l\frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

13) $\displaystyle\int \frac{1-e^{-px}}{1-e^{-x}}\,\frac{1-e^{-qx}}{x}e^{-rx}dx = l\frac{\Gamma(r)\Gamma(p+q+r)}{\Gamma(p+r)\Gamma(q+r)}$ V. T. 127, N. 9.

14) $\displaystyle\int \frac{(1-e^{-px})(1-e^{-qx})(1-e^{-rx})}{1-e^{-x}}e^{-sx}\frac{dx}{x} = l\frac{\Gamma(p+q+s)\Gamma(p+r+s)\Gamma(q+r+s)\Gamma(s)}{\Gamma(p+s)\Gamma(q+s)\Gamma(r+s)\Gamma(p+q+r+s)}$ V. T. 127, N. 11.

15) $\displaystyle\int \frac{(e^{qx}-e^{-qx})^2}{1-e^{px}}\frac{dx}{x} = l\left(\frac{p}{2q\pi}\,Sin\frac{2q\pi}{p}\right)$ V. T. 128, N. 10.

16) $\displaystyle\int \frac{1-e^{(1-q)x}}{1-e^{-x}}\,\frac{1-e^{(\frac{1}{2}-q)x}}{e^{\frac{1}{2}x}}\frac{dx}{x} = (2q-2)\,l2$ V. T. 132, N. 15.

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17) $\int \frac{e^x-1}{e^x+1}\frac{1}{e^x+e^{-x}}\frac{dx}{x}=\frac{1}{2}l2$ (VIII, 542).

18) $\int \frac{1-e^{-x}}{e^x+1}\frac{e^{-x}}{e^x+e^{-x}}\frac{dx}{x}=l\frac{\pi}{2\sqrt{2}}$ V. T. 130, N. 17.

F. Alg. rat. fract. à dén. mon.; Exp. bin. $e^{ax}\pm 1$ en dén. A plusieurs termes. TABLE 94. Lim. 0 et ∞.

1) $\int \left\{\frac{1}{1-e^{-x}}-\frac{1}{x}\right\}e^{-x}\,dx=\mathrm{A}$ V. T. 127, N. 15.

2) $\int \left\{\frac{e^{-x}}{x}-\frac{e^{-qx}}{e^x-1}\right\}dx=\mathrm{Z}'(1+q)$ V. T. 127, N. 16.

3) $\int \left\{\frac{e^{-qx}}{1-e^{-x}}-\frac{e^{-px}}{x}\right\}dx=lp-\mathrm{Z}'(q)$ V. T. 127, N. 17.

4) $\int \left\{\frac{b}{x}-\frac{e^{(1-q)x}}{1-e^{\frac{x}{b}}}\right\}e^{-x}\,dx=b\mathrm{Z}'(bq)-blb$ V. T. 132, N. 21.

5) $\int \left\{\frac{1}{2}-\frac{1}{1+e^{-\frac{1}{2}x}}\right\}e^{-x}\frac{dx}{x}=\frac{1}{2}l\frac{\pi}{4}$ (IV, 195). 6) $\int \left\{\frac{1}{2}e^{-2x}-\frac{1}{e^x+1}\right\}\frac{dx}{x}=-\frac{1}{2}l\pi$ (IV, 195).

7) $\int \left\{q-\frac{1-e^{-qx}}{1-e^{-x}}\right\}e^{-x}\frac{dx}{x}=l\Gamma(q+1)$ (IV, 195).

8) $\int \left\{qe^{-x}-\frac{e^{-px}-e^{-(p+q)x}}{e^x-1}\right\}\frac{dx}{x}=l\frac{\Gamma(p+q+1)}{\Gamma(p+1)}$ V. T. 127, N. 19.

9) $\int \left\{\frac{e^{-qx}}{1-e^{-x}}-\frac{e^{-pqx}+(p-1)e^{-\frac{1}{2}px}}{1-e^{-px}}\right\}\frac{dx}{x}=\frac{1}{2}(p-1)l2+\left(\frac{1}{2}-pq\right)lp$ V. T. 132, N. 24.

10) $\int \left\{\frac{e^x}{e^{2x}-1}-\frac{1}{2x}\right\}\frac{dx}{x}=-\frac{1}{2}l2$

11) $\int \left\{\frac{q}{e^{qx}-e^{-qx}}-\frac{p}{e^{px}-e^{-px}}\right\}\frac{dx}{x}=\frac{p-q}{2}l2$

(10, 11) Winckler, Sitz. Ber. Wien. B. 21, 389.

12) $\int \left\{1-e^{-x}-\frac{(1-e^{-qx})(1-e^{-px})}{1-e^{-x}}\right\}\frac{dx}{x}=l\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 130, N. 18. $l\Gamma$

13) $\int \left\{ap-\frac{1}{2}(a-1)-\frac{a}{1-e^{-x}}-\frac{e^{(1-p)x}}{1-e^{\frac{x}{a}}}\right\}e^{-x}\frac{dx}{x}=\sum_0^{a-1}l\left(p-\frac{n}{a}+1\right)$ (IV, 196).

14) $\int \left\{\frac{a-1}{2}+\frac{a-1}{1-e^{-x}}+\frac{e^{(1-p)x}}{1-e^{\frac{x}{a}}}+\frac{e^{-apx}}{1-e^{-x}}\right\}e^{-x}\frac{dx}{x}=\frac{1}{2}(a-1)l2\pi-\left(ap+\frac{1}{2}\right)la$ (IV, 196).

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15) $\int\left\{\frac{e^{(1-p)x}}{1-e^x}-\frac{e^{(1-p)qx}}{1-e^{qx}}-\frac{e^x}{1-e^x}+\frac{e^{qx}}{1-e^{qx}}\right\}\frac{dx}{x}=q\,lp$ (IV, 196).

16) $\int\left\{\frac{1}{e^x-1}-\frac{pe^{-px}}{1-e^{-px}}+\left(pq-\frac{p+1}{2}\right)e^{-px}+(1-pq)e^{-x}\right\}\frac{dx}{x}=\frac{p-1}{2}l2\pi+\left(\frac{1}{2}-pq\right)lp$

V. T. 130, N. 21.

17) $\int\left\{\frac{e^{-qx}}{1-e^{-x}}-\frac{e^{-pqx}}{1-e^{-px}}-\frac{p-1}{1-e^{-px}}e^{-px}-\frac{p-1}{2}e^{-px}\right\}\frac{dx}{x}=\frac{p-1}{2}l2\pi+\left(\frac{1}{2}-pq\right)lp$

V. T. 130, N. 22.

18) $\int\left\{qe^{-px}-\frac{1}{p}e^{-q}-\frac{1}{p}\frac{e^p-e^{-pqx}}{1-e^{-x}}\right\}\frac{dx}{x}=\frac{1}{p}l\Gamma(pq)-q\,lp$

19) $\int\left\{\frac{a}{q}p-\frac{a(a-1)}{2}\frac{r}{q}-a-\frac{a}{1-e^{-x}}+\frac{1-e^{-\left(\frac{p}{q}-1\right)x}}{1-e^{-x}}\frac{1-e^{-\frac{r}{q}ax}}{1-e^{-\frac{r}{q}x}}\right\}e^{-x}\frac{dx}{x}=\sum_0^{a-1}l\Gamma\left(\frac{p+nr}{q}\right)$

20) $\int\left\{\frac{a}{q}\left(p+\frac{ar-q-r}{2}\right)e^{-qx}-\frac{1}{2}ae^{-qx}-\frac{a}{e^{qx}-1}+\frac{1-e^{-arx}}{1-e^{-qx}}\frac{e^{-px}}{1-e^{-rx}}\right\}\frac{dx}{x}=\sum_0^{a-1}l\Gamma\left(\frac{p+nr}{q}\right)$

21) $\int\left\{\frac{1}{2}\left(\frac{ar}{q}e^{-rx}-ae^{-qx}\right)+\frac{ar}{q(e^{rx}-1)}-\frac{a}{e^{qx}-1}\right\}\frac{dx}{x}=\frac{a}{q}\left(p+\frac{ar-q-r}{2}\right)l\frac{q}{r}+\sum_0^{a-1}l\Gamma\left(\frac{p+nr}{q}\right)-$

$-\sum_0^{ar-1}l\Gamma\left(\frac{p+nq}{r}\right)$ Sur 18) à 21) voyez Winckler, Sitz. Ber. Wien. B. 21, 389.

22) $\int\left\{\frac{1}{1-e^{-2x}}-\frac{2-e^{-x}}{2x}-\frac{1-e^{-x}}{2}\right\}e^{-x}\frac{dx}{x}=0$ (IV, 195).

23) $\int\left\{\frac{1}{e^x-1}-\frac{1}{e^{2x}-1}-\frac{e^{-\frac{1}{2}x}}{x}+\frac{e^{-x}}{2x}\right\}\frac{dx}{x}=0$ (IV, 196).

24) $\int\left\{\frac{1}{1-e^{-x}}-\frac{1}{x}-\frac{1}{2}\right\}e^{-\frac{1}{2}x}\frac{dx}{x}=\frac{1}{2}(1-l2)=$ 25) $\int\left\{\frac{1}{1-e^{-2x}}-\frac{1}{2x}-\frac{1}{2}\right\}e^{-x}\frac{dx}{x}$ (IV, 195).

26) $\int\left\{\left(p-1-\frac{1}{1-e^{-x}}\right)e^{-x}+\left(\frac{1}{2}+\frac{1}{x}\right)e^{-px}\right\}\frac{dx}{x}=\left(p-\frac{1}{2}\right)lp-p+\frac{1}{2}l2\pi$ (IV, 195).

27) $\int\left\{\left(\frac{1}{x}+\frac{1}{2}\right)e^{-\frac{1}{2}x}-\left(\frac{1}{2}+\frac{1}{1-e^{-x}}\right)e^{-x}\right\}\frac{dx}{x}=\frac{1}{2}(l2\pi-1)$ (IV, 195).

28) $\int\left\{pe^{-x}-\frac{1}{x}e^{-px}-\frac{1}{2}e^{-px}-\frac{1}{e^x-1}\right\}\frac{dx}{x}=\left(p+\frac{1}{2}\right)lp-p+\frac{1}{2}l2\pi$ (IV, 195).

29) $\int\left\{\frac{1}{2}e^{-x}+\frac{1}{x}e^{-x}-\frac{1}{e^x-1}\right\}\frac{dx}{x}=\frac{1}{2}l2\pi-1=$ 30) $\int\left\{\frac{1}{x}e^{-x}-\frac{1}{2}\frac{e^{-x}+1}{e^x-1}\right\}\frac{dx}{x}$ (IV, 196).

31) $\int\left\{\frac{1}{x}e^{-x}-xe^{-x}-\frac{1}{2}\,\frac{e^{-x}+1}{e^{x}-1}\right\}\frac{dx}{x}=\frac{1}{2}\,l\,2\,\pi=$ 32) $\int\left\{\frac{1}{x}-\frac{1}{2}e^{-x}-\frac{1}{e^{x}-1}\right\}\frac{dx}{x}$ (IV, 196).

33) $\int\left\{\left(q-\frac{1}{2}\right)\frac{e^{-rx}-e^{-px}}{x}+\frac{pe^{-pqx}}{1-e^{-px}}-\frac{re^{-qrx}}{1-e^{-rx}}\right\}\frac{dx}{x}=(r-p)\left\{\frac{1}{2}-q+\frac{1}{2}\,l\,2\,\pi-l\,\Gamma(q)\right\}$

V. T. 131, N. 13.

F. Alg. rat. fract. à dén. monôme. Exp. binôme $e^{ax}\pm e^{-ax}$ en dén. TABLE 95. Lim. 0 et ∞.

1) $\int\frac{e^{x}-e^{-x}}{e^{2x}+e^{-2x}}\,\frac{dx}{x}=l\,Tg\,\frac{3\pi}{8}$ V. T. 128, N. 3.

2) $\int\frac{1-e^{2(q-p)x}}{e^{qx}+e^{(q-2p)x}}\,\frac{dx}{x}=l\,Cot\,\frac{q\pi}{4p}$ V. T. 128, N. 6.

3) $\int\frac{e^{qx}-e^{-qx}}{e^{px}+e^{-px}}\,\frac{dx}{x}=l\,Tg\left(\frac{p+q}{4p}\pi\right)$ V. T. 128, N. 5.

4) $\int\frac{(1-e^{-x})^2}{e^{x}+e^{-x}}\,\frac{dx}{x}=l\frac{4}{\pi}$ V. T. 128, N. 2. 5) $\int\frac{(e^{qx}-e^{-qx})^2}{e^{px}-e^{-px}}\,\frac{dx}{x}=l\,Sec\,\frac{q\pi}{p}$ (VIII, 542).

6) $\int\frac{(1-e^{(q-p)x})^2}{e^{qx}-e^{(q-2p)x}}\,\frac{dx}{x}=l\,Cosec\,\frac{q\pi}{2p}$ V. T. 128, N. 9.

7) $\int\frac{(e^{qx}-e^{-qx})^2}{e^{x}-e^{-x}}e^{-x}\,\frac{dx}{x}=l(q\pi\,Cosec\,q\pi)$ V. T. 130, N. 13.

8) $\int\frac{1-e^{-qx}}{e^{x}-e^{-x}}\,\frac{1-e^{-(q+1)x}}{x}\,dx=q\,l\,2$ $[q>1]$ V. T. 128, N. 12.

9) $\int\frac{e^{qx}+e^{-qx}}{e^{rx}+e^{-rx}}\,\frac{dx}{x^p}=\Gamma(1-p)\sum_0^\infty(-1)^n\left\{\frac{1}{\{(2n+1)r-q\}^{1-p}}+\frac{1}{\{(2n+1)r+q\}^{1-p}}\right\}$ (VIII, 488*).

10) $\int\frac{e^{qx}-e^{-qx}}{e^{rx}-e^{-rx}}\,\frac{dx}{x^p}=\Gamma(1-p)\sum_0^\infty\left\{\frac{1}{\{(2n+1)r-q\}^{1-p}}-\frac{1}{\{(2n+1)r+q\}^{1-p}}\right\}$ (VIII, 488*).

Dans 9) et 10) on a $p<1$.

11) $\int\left\{\frac{x}{e^{x}-e^{-x}}-\frac{1}{2}\right\}\frac{dx}{x^2}=-\frac{1}{2}\,l\,2$ (VIII, 437).

12) $\int\left\{\frac{p}{e^{px}-e^{-px}}-\frac{q}{e^{qx}-e^{-qx}}\right\}\frac{dx}{x}=\frac{1}{2}(q-p)\,l\,2$ (VIII, 437).

1) $$\int \frac{e^{-px} - e^{-qx}}{e^x + e^{-x} + 2\,Cos\frac{a\pi}{b}} \frac{dx}{x} = Cosec\frac{a\pi}{b} . \sum_1^{b-1} (-1)^{n-1}\, Sin\frac{n a \pi}{b} . l \frac{\Gamma\left(\frac{b+q+n}{2b}\right)\Gamma\left(\frac{p+n}{2b}\right)}{\Gamma\left(\frac{b+p+n}{2b}\right)\Gamma\left(\frac{q+n}{2b}\right)} \begin{bmatrix} a+b \\ \text{impair} \end{bmatrix}, =$$

$$= Cosec\frac{a\pi}{b} . \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1}\, Sin\frac{n a \pi}{b} . l \frac{\Gamma\left(\frac{b+q-n}{b}\right)\Gamma\left(\frac{p+n}{b}\right)}{\Gamma\left(\frac{b+p-n}{b}\right)\Gamma\left(\frac{q+n}{b}\right)} \begin{bmatrix} a+b \\ \text{pair} \end{bmatrix}$$ V. T. 130, N. 2.

2) $$\int \frac{(1-e^{-x})^2}{e^x + e^{-x} + 2\,Cos\frac{a\pi}{b}} \frac{dx}{x} = Cosec\frac{a\pi}{b} . \sum_1^{b-1} (-1)^{n-1}\, Sin\frac{n a\pi}{b} . l \frac{\left\{\Gamma\left(\frac{b+n+1}{2b}\right)\right\}^2 \Gamma\left(\frac{n+2}{2b}\right)\Gamma\left(\frac{n}{2b}\right)}{\left\{\Gamma\left(\frac{n+1}{2b}\right)\right\}^2 \Gamma\left(\frac{n+b}{2b}\right)\Gamma\left(\frac{n+b+2}{2b}\right)} \begin{bmatrix} a+b \\ \text{impair} \end{bmatrix}, =$$

$$= Cosec\frac{a\pi}{b} . \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1}\, Sin\frac{n a \pi}{b} . l \frac{\left\{\Gamma\left(\frac{b-n+1}{b}\right)\right\}^2 \Gamma\left(\frac{n+2}{b}\right)\Gamma\left(\frac{n}{b}\right)}{\left\{\Gamma\left(\frac{n+1}{b}\right)\right\}^2 \Gamma\left(\frac{b-n}{b}\right)\Gamma\left(\frac{b-n+2}{b}\right)} \begin{bmatrix} a+b \\ \text{pair} \end{bmatrix}$$ V. T. 130, N. 3.

3) $$\int \left\{ e^{-x}\, Tg\frac{a\pi}{2b} - \frac{2\,e^{-px}\, Sin\frac{a\pi}{b}}{e^x + e^{-x} + 2\,Cos\frac{a\pi}{b}} \right\} \frac{dx}{x} = Tg\frac{a\pi}{2b} . l2b + 2 \sum_1^{b-1} (-1)^{n-1}\, Sin\frac{n a\pi}{b} . l \frac{\Gamma\left(\frac{b+p+n}{2b}\right)}{\Gamma\left(\frac{p+n}{2b}\right)} \begin{bmatrix} a+b \\ \text{impair} \end{bmatrix}, =$$

$$= Tg\frac{a\pi}{2b} . lb + 2 \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1}\, Sin\frac{n a \pi}{b} . l \frac{\Gamma\left(\frac{b+p-n}{b}\right)}{\Gamma\left(\frac{p+n}{b}\right)} \begin{bmatrix} a+b \\ \text{pair} \end{bmatrix}$$ V. T. 130, N. 4.

4) $$\int \frac{1}{e^x + e^{-x} + 2\,Cos\,\lambda} \frac{dx}{x^{1-q}} = Cosec\,\lambda . \Gamma(q) \sum_1^{\infty} (-1)^{n-1} \frac{Sin\, n\lambda}{n^q}$$ V. T. 130, N. 1.

5) $$\int \frac{e^x + e^{-x}}{e^x + e^{-x} + 2\,Cos\,\lambda} \frac{dx}{x^{1-q}} = Sec\frac{1}{2}\lambda . \Gamma(q) \sum_1^{\infty} (-1)^{n-1} \frac{Cos\{(n-\frac{1}{2})\lambda\}}{n^q}$$ V. T. 130, N. 5.

6) $$\int \left\{ q - \frac{1}{2} + \frac{(1-e^{-x})(1-qx) - x e^{-x}}{e^{-2x} + 1 - 2e^{-x}} e^{(1-q)x} \right\} e^{-x} \frac{dx}{x} = q - \frac{1}{2} + l\Gamma(q) - \frac{1}{2} l 2\pi$$

V. T. 128, N. 15.

7) $$\int \left\{ \frac{p + qe^{-mx}}{re^{mx} + s + te^{-mx}} - \frac{p + qe^{-m_1 x}}{re^{m_1 x} + s + te^{-m_1 x}} \right\} \frac{dx}{x} = \frac{p+q}{r+s+t}\, l\frac{m_1}{m}$$ (VIII, 436).

1) $\int \frac{1}{e^{\pi x}+e^{-\pi x}} \frac{dx}{1+x^2} = 1-\frac{1}{4}\pi$ (IV, 199).

2) $\int \frac{1}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} l 2$ (VIII, 636).

3) $\int \frac{1}{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2\sqrt{2}}\left(\pi - l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right)$ (IV, 200).

4) $\int \frac{1}{e^{\pi x}+e^{-\pi x}} \frac{dx}{q^2+x^2} = \frac{1}{4q}\left\{Z'\left(\frac{q}{2}+\frac{3}{4}\right)-Z'\left(\frac{q}{2}+\frac{1}{4}\right)\right\}$ (IV, 199).

5) $\int \frac{1}{e^{px}+e^{-px}} \frac{dx}{q^2+x^2} = \frac{\pi}{q}\sum_1^\infty \frac{(-1)^{n-1}}{2pq+(2n-1)\pi}$ (VIII, 636*).

6) $\int \frac{e^{px}-e^{-px}}{e^{px}+e^{-px}} \frac{x\,dx}{q^2+x^2} = \pi\sum_1^\infty \frac{1}{2pq+(2n-1)\pi}$ (VIII, 636*).

7) $\int \frac{x}{e^{\pi x}-e^{-\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} l2 - \frac{1}{4}$ (VIII, 636).

8) $\int \frac{x}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{4}\pi - \frac{1}{2}$ (IV, 200).

9) $\int \frac{x}{e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = \frac{1}{4}\pi\sqrt{2}-1+\frac{1}{2\sqrt{2}} l\frac{\sqrt{2}+1}{\sqrt{2}-1}$ (IV, 200).

10) $\int \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{dx}{1+x^2} = -\frac{1}{2}p\,Cos p+\frac{1}{2}Sin p . l\{2(1+Cos p)\}$ $[p \leqq \pi]$ (VIII, 636).

11) $\int \frac{e^{px}-e^{-px}}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2}\pi\,Sin p+\frac{1}{2}Cos p . l\frac{1-Sin p}{1+Sin p}$ $\left[p \leqq \frac{1}{2}\pi\right]$ (VIII, 637).

12) $\int \frac{e^{px}+e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{x\,dx}{1+x^2} = \frac{1}{2}(p\,Sin p-1)+\frac{1}{2}Cos p . l\{2(1+Cos p)\}$ $[p \leqq \pi]$ (VIII, 636).

13) $\int \frac{e^{px}+e^{-px}}{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}} \frac{x\,dx}{1+x^2} = \frac{1}{2}\pi\,Cos p - 1+\frac{1}{2}Sin p . l\frac{1+Sin p}{1-Sin p}$ $\left[p < \frac{1}{2}\pi\right]$ (VIII, 637).

14) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{1+x^2} = \frac{1}{2}A - \frac{1}{4}$ (IV, 200).

15) $\int \frac{x}{e^{2\pi q x}-1} \frac{dx}{1+x^2} = \frac{1}{2} lq + \frac{1}{4q} - \frac{1}{2}Z'(1+q)$ (IV, 200).

16) $\int \frac{x}{e^{px}-e^{-px}} \frac{dx}{q^2+x^2} = \frac{\pi}{4pq}+\frac{\pi}{2}\sum_1^\infty \frac{(-1)^n}{pq+n\pi}$ (VIII, 635*).

17) $\int \frac{e^{px}+e^{-px}}{e^{px}-e^{-px}} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2pq} + \pi \sum_1^\infty \frac{1}{pq+n\pi}$ (VIII, 635*).

18) $\int \frac{e^{(r-p)x}-e^{(p-r)x}}{e^{rx}-e^{-rx}} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \sum_1^\infty \frac{1}{qr+n\pi} Sin \frac{np\pi}{r}$

19) $\int \frac{e^{(r-p)x}+e^{(r-p)x}}{e^{rx}-e^{-rx}} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2qr} + \pi \sum_1^\infty \frac{1}{qr+n\pi} Cos \frac{np\pi}{r}$

(18, 19) $[p^2 < r^2]$ (VIII, 635*).

20) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{q^2+x^2} = -\frac{1}{4q} + \frac{1}{2} l q - \frac{1}{2} Z'(q)$ (IV, 200).

21) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{q^2-x^2} = \frac{1}{4q^2} \sum_0^\infty \frac{(-1)^n}{n+1} B_{2n+1} \frac{1}{q^{2n}}$ (IV, 200).

22) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{(q^2+x^2)^2} = -\frac{1}{8q^3} - \frac{1}{4q^2} + \frac{1}{4q} \frac{dZ'(q)}{dq} = \frac{1}{4q^4} \sum_0^\infty \frac{1}{q^{2n}} B_{2n+1}$ (IV, 200).

23) $\int \frac{x}{e^{2\pi x}-1} \frac{dx}{(q^2-x^2)^2} = \frac{1}{4q^4} \sum_0^\infty (-1)^n \frac{1}{q^{2n}} B_{2n+1}$ (IV, 200).

1) $\int e^{-x} dx \sqrt[q]{x^b} = \frac{q}{b+q} \cdot \frac{2q}{b+2q} \cdot \frac{3q}{b+3q} \cdots$ (IV, 201).

2) $\int e^{-qx} x^{a-\frac{1}{2}} dx = \frac{1^{a/2}}{(2q)^a} \sqrt{\frac{\pi}{q}}$ (VIII, 247).

3) $\int e^{-\frac{1+x^2}{2qx}} dx \sqrt{x} = \frac{1+q}{\sqrt[q]{e}} \sqrt{2q\pi}$ (VIII, 287).

4) $\int e^{-p^2x-\frac{q^2}{x}} dx \sqrt{x} = \frac{1}{2p^3}(1+2pq) e^{-2pq} \sqrt{\pi}$ (VIII, 451).

5) $\int e^{-\left(px+\frac{q}{x}\right)} x^{a-\frac{1}{2}} dx = \left(\frac{q}{p}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{p}} \cdot \sum_0^\infty \frac{(a+1-n)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$ (VIII, 433).

6) $\int e^{-x^a} x^{(b+\frac{1}{2})a-1} dx = \frac{1^{b/2}}{2^b a} \sqrt{\pi}$ (IV, 201). $\sqrt{\pi}$

7) $\int \frac{dx\sqrt{x}}{e^x+e^{-x}} = \frac{1}{2}\pi \cdot \sum_0^\infty (-1)^n \frac{1}{\sqrt{2n+1}^3}$ V. T. 115, N. 33.

8) $\int \frac{e^x-e^{-x}}{(e^x+e^{-x})^2} dx\sqrt{x} = \frac{1}{2}\sqrt{\pi} \cdot \sum_0^\infty (-1)^n \frac{1}{\sqrt{2n+1}}$ V. T. 98, N. 25.

9) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x} + 1)^2} dx \sqrt{x} = \frac{1}{2} \mathit{Cosec} \frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty (-1)^{n-1} \mathit{Sin} \frac{n\pi}{3} . \sqrt{\frac{1}{n}}$ V. T. 98, N. 26.

10) $\int e^{-px} \frac{dx}{\sqrt{x}} = \sqrt{\frac{\pi}{p}}$ (VIII, 264).

11) $\int e^{pxi} \frac{dx}{\sqrt{x}} = e^{\frac{1}{4}\pi i} \sqrt{\frac{\pi}{p}}$ (IV, 202).

12) $\int e^{-\frac{1+x^2}{2qx}} \frac{dx}{\sqrt{x}} = \frac{\sqrt{2q\pi}}{\sqrt[q]{e}}$ (VIII, 287) =

13) $\int e^{-\frac{1+x^2}{2qx}} \frac{dx}{x\sqrt{x}}$ (IV, 202).

14) $\int e^{-\frac{1+x^2}{2qx}} \frac{dx}{x^2\sqrt{x}} = \frac{1+q}{\sqrt[q]{e}} \sqrt{2q\pi}$ (IV, 202).

15) $\int e^{-\left(p^2x + \frac{q^2}{x}\right)} \frac{dx}{\sqrt{x}} = \frac{1}{p} e^{-2pq} \sqrt{\pi}$ (VIII, 428).

16) $\int e^{-\left(p^2x + \frac{q^2}{x}\right)} \frac{dx}{x\sqrt{x}} = \frac{1}{q} e^{-2pq} \sqrt{\pi}$ (VIII, 428).

17) $\int e^{-\left(px + \frac{q}{x}\right)} \frac{dx}{x^{a+\frac{1}{2}}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{(a-n)^{2n|1}}{2^{n|2}(2\sqrt{pq})^n}$ (VIII, 433).

18) $\int e^{-x} \sqrt[q]{x^b} \frac{dx}{x} = \frac{q}{b} \frac{q}{b+q} . \frac{2q}{b+2q} \frac{3q}{b+3q} \dots$ (IV, 202).

19) $\int e^{-\frac{1}{2}p\left(x+\frac{1}{x}\right)} \frac{\sqrt{1-x^2}^a}{1+x^2} x^{2a} dx = \frac{2a+1}{(-1)^a} \sum_0^{a+1} \frac{(a+n)^{2n|-1}}{1^{2n+1|1}} 2^{2n+1} \frac{d^{2n}}{dp^{2n}} . \frac{e^{-p}}{p}$ (VIII, 432).

20) $\int (e^{p\sqrt{x}} + e^{-p\sqrt{x}}) e^{-r^2x} \frac{dx}{\sqrt{x}} = \frac{2}{r} e^{\frac{p^2}{4r^2}} \sqrt{\pi}$ (VIII, 570).

21) $\int (e^{-px} - e^{-qx}) \frac{dx}{x^{2-\frac{1}{a}}} = \frac{a}{a-1} \Gamma\left(\frac{1}{a}\right) \left(q^{\frac{a-1}{a}} - p^{\frac{a-1}{a}}\right) [q > p > 0]$ (IV, 202).

22) $\int (e^{q\sqrt{x}} - e^{-q\sqrt{x}})^2 e^{-p^2x} \frac{dx}{\sqrt{x}} = \frac{2\sqrt{\pi}}{r}\left(e^{\frac{q^2}{r^2}} - 1\right)$ (VIII, 570).

23) $\int \frac{\mathit{Sin}\, p . \sqrt{\{\sqrt{p^2+x^2}+p\}} - \mathit{Cos}\, p . \sqrt{\{\sqrt{p^2+x^2}-p\}}}{\sqrt{p^2+x^2}} e^{-x} dx = 0$ (IV, 203).

24) $\int \frac{\mathit{Sin}\, p . \sqrt{\{\sqrt{p^2+x^2}-p\}} + \mathit{Cos}\, p . \sqrt{\{\sqrt{p^2+x^2}+p\}}}{\sqrt{p^2+x^2}} e^{-x} dx = 0$ (IV, 203).

25) $\int \frac{1}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = \sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ (VIII, 487).

26) $\int \frac{1}{e^x + e^{-x} + 1} \frac{dx}{\sqrt{x}} = \mathit{Cosec} \frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty (-1)^{n-1} \mathit{Sin} \frac{n\pi}{3} . \sqrt{\frac{1}{n}}$ (VIII, 487).

27) $\int \frac{Cos\,\lambda - e^{-x} - Cos\{(a+1)\lambda\}.e^{-ax} + Cos\,a\lambda.e^{-(a+1)x}}{e^x + e^{-x} - 2\,Cos\,\lambda} \frac{dx}{\sqrt{x}} = \sqrt{\pi}.\sum_1^a \frac{Cos\,n\lambda}{\sqrt{n}}$ V. T. 133, N. 6.

28) $\int \frac{Sin\,\lambda - Sin\{(a+1)\lambda\}.e^{-ax} + Sin\,a\lambda.e^{-(a+1)x}}{e^x + e^{-x} - 2\,Cos\,\lambda} \frac{dx}{\sqrt{x}} = \sqrt{\pi}.\sum_1^a \frac{Sin\,n\lambda}{\sqrt{n}}$ V. T. 133, N. 5.

F. Algébrique; Exp. sous forme irrat. TABLE 99. Lim. 0 et ∞.

1) $\int e^{-x} x\,dx \sqrt{1-e^{-x}} = \frac{4}{3}\left(\frac{4}{3} - l2\right)$ V. T. 117, N. 2.

2) $\int e^{-x} x\,dx \sqrt{1-e^{-2x}} = \frac{1}{4}\pi\left(\frac{1}{2} + l2\right)$ V. T. 117, N. 1.

3) $\int e^{-x} x\,dx \sqrt{1-e^{-2x}}^{\,2a-1} = \frac{1^{a/2}\pi}{2^{a+2}\,1^{a/1}}\{A + Z'(a+1) + 2\,l2\}$ V. T. 117, N. 3.

4) $\int \frac{x\,dx}{\sqrt{e^x-1}} = 2\pi\,l2$ V. T. 118, N. 3.

5) $\int \frac{x^2\,dx}{\sqrt{e^x-1}} = 4\pi\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

6) $\int \frac{x e^{-x}\,dx}{\sqrt{e^x-1}} = \frac{1}{2}\pi(2\,l2 - 1)$ V. T. 118, N. 5.

7) $\int \frac{x e^{-2x}\,dx}{\sqrt{e^x-1}} = \frac{3}{4}\pi\left(l2 - \frac{7}{12}\right)$ V. T. 118, N. 6.

8) $\int \frac{x e^{-x}\,dx}{\sqrt{e^{2x}-1}} = 1 - l2$ V. T. 118, N. 4.

9) $\int \frac{x e^{-2ax}\,dx}{\sqrt{e^{2x}-1}} = -\frac{2^{a-1/2}}{1^{a/2}}\left\{l2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 6.

10) $\int \frac{x e^{-(2a+1)x}\,dx}{\sqrt{e^{2x}-1}} = \frac{3^{a-1/2}}{2^{a/2}}\frac{\pi}{2}\left\{l2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 5.

11) $\int \frac{x^2 e^x\,dx}{\sqrt{e^x-1}^{\,3}} = 8\pi\,l2$ V. T. 99, N. 4.

12) $\int \frac{x^3 e^x\,dx}{\sqrt{e^x-1}^{\,3}} = 24\pi\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 99, N. 5.

13) $\int \frac{x\,dx}{\sqrt[3]{e^{3x}-1}} = \frac{\pi}{3\sqrt{3}}\left\{l3 + \frac{\pi}{3\sqrt{3}}\right\}$ V. T. 118, N. 7.

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14) $\int \frac{x\,dx}{\sqrt[3]{e^{3x}-1}^2} = \frac{\pi}{3\sqrt{3}}\left\{l3 - \frac{\pi}{3\sqrt{3}}\right\}$ V. T. 118, N. 8.

15) $\int \frac{x^a e^{-qx}\,dx}{\sqrt[b]{1-e^{-bx}}^{b-c}} = 1^{a/1} \sum_0^\infty \frac{(b-c)^{n/b}}{b^{n/b}} \frac{1}{(q+bn)^{a+1}}$ V. T. 118, N. 14.

16) $\int \frac{x}{p^2 e^x + (q^2-p^2)} \frac{e^x\,dx}{\sqrt{e^x-1}} = \frac{2\pi}{pq} l \frac{p+q}{p}$ V. T. 138, N. 10.

17) $\int \frac{x}{p^2 e^x - (p^2+q^2)} \frac{e^x\,dx}{\sqrt{e^x-1}} = \frac{2\pi}{pq} Arctg \frac{q}{p}$ V. T. 138, N. 11.

18) $\int \frac{\{q\sqrt{e^x-1} - ri\}^{-p} + \{q\sqrt{e^x-1}+ri\}^{-p}}{(e^x-1)^{\frac{3-p}{2}}} x e^{-x}\,dx = \frac{4}{r} \frac{\pi}{p-1}\{q^{1-p} - (q+r)^{1-p}\}$

V. T. 141, N. 12.

F. Alg. rat. ent.; Exponentielle. TABLE 100. Lim. — ∞ et ∞.

1) $\int e^{ix}(ix)^{p-1}\,dx = 2\,Sin p\pi . \Gamma(p)\,[p<1]$ (VIII, 288).

2) $\int e^{ix}(-ix)^{p-1}\,dx = 0\,[p<1]$ (VIII, 288) $=$ 3) $\int e^{ix}(r-ix)^{p-1}\,dx\,[p \leqq 1]$ (IV, 205).

4) $\int e^{ix}(r+ix)^{p-1}\,dx = \frac{2\pi e^{-r}}{\Gamma(1-p)}\,[p \leqq 1]$ (IV, 205).

5) $\int e^{ix}(ix)^{p-1}(-ix)^{q-1}\,dx = 2\,Sin p\pi . \Gamma(p+q-1)\,[p<1, q \leqq 1]$ (VIII, 288).

6) $\int e^{-x^2+2px} x^2\,dx = \frac{1}{2}(1+2p^2)e^{p^2}\sqrt{\pi}$ (IV, 205).

7) $\int e^{-px^2+2qx} x\,dx = \frac{q}{p}\sqrt{\frac{\pi}{p}} . e^{\frac{q^2}{p}}$ (IV, 205).

8) $\int e^{-px^2+2qx} x^{a+1}\,dx = \frac{1}{2^a p}\sqrt{\frac{\pi}{p}} \cdot \frac{d^a}{dq^a} \cdot q e^{\frac{q^2}{p}}$ (IV, 205).

9) $\int e^{-px^2-qx} x^a\,dx = (-1)^a \left(\frac{q}{2p}\right)^a e^{\frac{q^2}{4p}} \sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}} \left(\frac{p}{q^2}\right)^n$ (IV, 205).

10) $\int e^{(px^2+qx)i} x^a\,dx = (-1)^a (1+i)\left(\frac{q}{2p}\right)^a . e^{-\frac{q^2 i}{4p}} \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}} \left(\frac{pi}{q^2}\right)^n$ (IV, 205).

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11) $\int e^{-(px^2+qx)i}\, x^a\, dx = (-1)^a (1-i)\left(\frac{q}{2p}\right)^a e^{\frac{q^2 i}{4p}} \sqrt{\frac{\pi}{2p}} \cdot \sum_0^\infty \frac{a^{2n|-1}}{1^{n|1}} \left(\frac{p}{q^2 i}\right)^n$ (IV, 205).

12) $\int e^{-x^2} (x-pi)^{2a}\, dx = \frac{1^{a|2}}{2^a} \sqrt{\pi} \cdot \sum_0^\infty (-1)^n \frac{a^{n|-1}}{1^{2n|1}} (2p)^{2n}$ Laplace, Probab.

13) $\int e^{-qe^x}\, x e^x\, dx = -\frac{1}{q}(\mathrm{A}+lq)$ V. T. 256, N. 2.

14) $\int e^{-qe^{2x}}\, x e^x\, dx = -\frac{1}{4}\left\{\mathrm{A}+l(4q)\right\}\sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

F. Alg. rat. ent. x; Exp. polynôme en dén. TABLE 101. Lim. — ∞ et ∞.

1) $\int \frac{x\,dx}{p^2 e^x + q^2 e^{-x}} = \frac{\pi}{2pq} l\frac{q}{p}$ V. T. 135, N. 5.

2) $\int \frac{x\,dx}{p^2 e^x - q^2 e^{-x}} = \frac{p}{4q}\pi^2$ V. T. 135, N. 6.

3) $\int \frac{e^{(p-1)x}\, x\,dx}{e^{rx}-1} = \left\{\frac{\pi}{r}\, Cosec\left(\frac{p+1}{r}\pi\right)\right\}^2$ $[p^2<1]$ V. T. 135, N. 8.

4) $\int \frac{1-e^{px}}{e^x-e^{-x}}\, x\,dx = -\left(\frac{\pi}{2}\, Tang\, \frac{1}{2}p\pi\right)^2$ $[p<1]$ V. T. 140, N. 3.

5) $\int e^{px} \frac{x\,dx}{e^x+q} = \pi q^{p-1}\, Cosec\, p\pi \cdot (lq - \pi\, Cot\, p\pi)$ $[p<1]$ V. T. 135, N. 1.

6) $\int \frac{x}{e^x-1} \frac{dx}{e^{(p-1)x}} = (\pi\, Cosec\, p\pi)^2$ $[p<1]$ V. T. 140, N. 1.

7) $\int \frac{1-e^{-x}}{1-e^{-2qx}} e^{(1-q)x}\, x\,dx = \left(\frac{\pi}{2q}\, Tg\, \frac{\pi}{2q}\right)^2$ $[q>1]$ V. T. 135, N. 10.

8) $\int \frac{1-e^{-2x}}{1-e^{-2qx}} e^{(2-q)x}\, x\,dx = \left(\frac{\pi}{2q}\, Tg\, \frac{\pi}{q}\right)^2$ $[q>2]$ V. T. 135, N. 11.

9) $\int \frac{1-e^{-2x}}{1-e^{-2bx}} e^{-ax}\, x\,dx = \left(\frac{\pi}{2b}\right)^2 Cosec^2 \frac{a\pi}{2b} \cdot Cosec^2\left(\frac{a+2}{2b}\pi\right) . Sin\left(\frac{a+1}{b}\pi\right) . Sin\frac{\pi}{b}$ V. T. 135, N. 12.

10) $\int \frac{x e^x\, dx}{(q+e^x)^2} = \frac{1}{q} lq$ $[q<1]$ V. T. 139, N. 1.

11) $\int \frac{x e^x\, dx}{(q+e^x)^{p+1}} = \frac{1}{pq^p}\left\{lq - \mathrm{A} - Z'(p)\right\} = \frac{1}{pq^p}\left\{lq - \sum_1^{p-1}\frac{1}{n}\right\}$ [p entier] V. T. 139, N. 2.

12) $\int \frac{x e^x dx}{(q+e^x)^{b+\frac{3}{2}}} = \frac{2}{(2b+1) q^{\frac{1}{2}+b}} \left\{ l(4q) - \sum_1^{b-1} \frac{1}{n} - 2 \sum_b^{2b-1} \frac{1}{n} \right\}$ V. T. 142, N. 5.

13) $\int \frac{x e^x dx}{(q^2+r^2 e^{2x})^p} = \frac{\Gamma(p-\frac{1}{2})\sqrt{\pi}}{4 q^{2p-1} r \Gamma(p)} \left\{ 2 l \frac{q}{2r} - \mathrm{A} - \mathrm{Z}'\left(p-\frac{1}{2}\right) \right\}$ V. T. 139, N. 3.

14) $\int \frac{x dx}{(q^2 e^x + e^{-x})^p} = \frac{-1}{2 q^p} l q \frac{(\Gamma \frac{1}{2} p)^2}{\Gamma(p)}$ V. T. 140, N. 6.

15) $\int \frac{x e^{-x} dx}{(q+e^{-x})^{a+2}} = \frac{1}{(1+a) q^{a+1}} \left\{ -lq + \sum_1^a \frac{1}{n} \right\}$ V. T. 139, N. 2.

16) $\int \frac{x}{e^x+q} \frac{dx}{e^{-x}+1} = \frac{1}{2(q-1)} (lq)^2$ V. T. 140, N. 8.

17) $\int \frac{x}{q e^{-x}+1} \frac{dx}{e^x-1} = \frac{1}{2(q+1)} \{\pi^2 + (lq)^2\}$ V. T. 140, N. 10.

18) $\int \frac{e^{(p-1)x}}{e^x+q} \frac{x dx}{e^x+1} = \frac{\pi}{q-1} Cosec^2 p\pi . \{ q^p Sin p\pi . lq + (1-q^p) \pi Cos p\pi \}$ $[p^2<1]$ V. T. 140, N. 9.

19) $\int \frac{e^{px}}{q e^{-x}+1} \frac{x dx}{e^x-1} = \frac{\pi}{1+q} Cosec^2 p\pi . \{ \pi + q^p (Sin p\pi . lq - \pi Cos p\pi) \}$ $[p^2<1]$ V. T. 140, N. 11.

F. Alg. rat. ent. x^a; Exp. polynôme en dén. TABLE 102. Lim. $-\infty$ et ∞.

1) $\int \frac{p^2 e^x - q^2 e^{-x}}{(p^2 e^x + q^2 e^{-x})^2} x^2 dx = \frac{\pi}{pq} l \frac{q}{p}$ V. T. 101, N. 1.

2) $\int \left(\frac{x}{e^x - e^{-x}} \right)^2 dx = \frac{1}{12} \pi^2$ V. T. 139, N. 4.

3) $\int \frac{p^2 e^x + q^2 e^{-x}}{(p^2 e^x - q^2 e^{-x})^2} x^2 dx = \frac{p}{2q} \pi^2$ V. T. 101, N. 2.

4) $\int \frac{p + (1-p) e^{-x}}{(1-e^{-x})^2} e^{-px} x^2 dx = 2\pi^2 Cosec^2 p\pi$ $[p<1]$ V. T. 101, N. 6.

5) $\int \frac{q^2 e^x - e^{-x}}{(q^2 e^x + e^{-x})^{p+1}} x^2 dx = \frac{-1}{q^p} l q \frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p+1)}$ V. T. 101, N. 14.

6) $\int \frac{x^2}{e^x-1} \frac{dx}{1+q e^{-x}} = \frac{1}{3(1+q)} \{\pi^2 + (lq)^2\} lq$ V. T. 141, N. 1.

7) $\int \frac{x - lq}{e^x-1} \frac{x dx}{1 - q e^{-x}} = \frac{1}{6(q-1)} \{4\pi^2 + (lq)^2\} lq$ V. T. 141, N. 5.

8) $\int \frac{x - lq}{e^x - 1} \frac{x e^{px} dx}{1 - q e^{-x}} = \frac{1}{q-1} \pi^2 Cosec^2 p\pi . \{(q^p + 1) lp - 2\pi Cot p\pi . (q^p - 1)\} \; [q^2 < 1]$ V. T. 141, N. 6.

9) $\int \frac{x^3}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{4(1+q)} \{\pi^2 + (lq)^2\}^2$ V. T. 141, N. 2.

10) $\int \frac{x^4}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{15(1+q)} \{\pi^2 + (lq)^2\}^2 \{7\pi^2 + 3(lq)^2\} lq$ V. T. 141, N. 3.

11) $\int \frac{x^5}{e^x - 1} \frac{dx}{1 + q e^{-x}} = \frac{1}{6(1+q)} \{\pi^2 + (lq)^2\}^2 \{3\pi^2 + (lq)^2\}^2$ V. T. 141, N. 4.

12) $\int \frac{e^x - q e^{-x}}{(e^x + q)^2} \frac{x^2 dx}{(1 + e^{-x})^2} = \frac{1}{q-1} (lq)^2$ V. T. 101, N. 16.

13) $\int \frac{e^x + q e^{-x}}{(q e^{-x} + 1)^2} \frac{x^2 dx}{(1 - e^x)^2} = \frac{1}{q+1} \{\pi^2 + (lq)^2\}$ V. T. 101, N. 17.

14) $\int \frac{x^{2a+1} dx}{e^{px} + e^{-px}} = 0$ (VIII, 285*). 15) $\int \frac{x^{2a} dx}{e^{px} + e^{-px}} = \frac{2}{p^{2a+1}} . 1^{2a/1} \sum_0^\infty \frac{(-1)^n}{(2n+1)^{2a+1}}$ (VIII, 285*).

16) $\int \frac{e^x - e^{-x}}{(e^x + e^{-x})^2} x^{2a} dx = 0$ V. T. 102, N. 14.

F. Alg. rat. fract.; Exponentielle. TABLE 103. Lim. $-\infty$ et ∞.

1) $\int e^{\left(px^2 + \frac{q}{x^2}\right) i} \frac{dx}{x^{2a}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{2i\sqrt{pq}} (1+i) \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a+n-1)^{2n/-1}}{1^{n/1}} \left(\frac{i}{4\sqrt{pq}}\right)^n$ (IV, 210).

2) $\int e^{-\left(px^2 + \frac{q}{x^2}\right) i} \frac{dx}{x^{2a}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2i\sqrt{pq}} (1-i) \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a+n-1)^{2n/-1}}{1^{n/1}} \left(\frac{1}{4i\sqrt{pq}}\right)^n$ (IV, 210).

3) $\int \frac{e^{px} - e^{qx}}{1 + e^{rx}} \frac{dx}{x} = l\left(Tg \frac{p\pi}{2r} . Cot \frac{q\pi}{2r}\right)$ V. T. 143, N. 2.

4) $\int \frac{e^{px} - e^{qx}}{1 - e^{rx}} \frac{dx}{x} = l\left(Sin \frac{p\pi}{r} . Cosec \frac{q\pi}{r}\right)$ V. T. 143, N. 4.

5) $\int \frac{e^{xi} dx}{q + xi} = 2\pi e^{-q}$ (IV, 211). 6) $\int \frac{(-xi)^p}{q + xi} e^{xi} dx = 2\pi q^p e^{-q}$ (IV, 211).

7) $\int \frac{(xi)^p}{q + xi} . e^{-xi} dx = 0$ (IV, 211).

8) $\int \frac{e^{-pxi} dx}{q^2 + x^2} = \frac{\pi}{q} e^{-pq}$ (VIII, 444) = 9) $\int \frac{e^{pxi} dx}{q^2 + x^2}$ (VIII, 444*).

10) $\int \frac{e^{(p-r)xi}\,dx}{q^2+x^2} = \frac{\pi}{q}\, e^{(p-r)q}\ [p<r<\infty] = \frac{\pi}{q}\, e^{(r-p)q}\ [0<r<p]$ (IV, 211).

11) $\int \frac{(-xi)^p}{q^2+x^2}\, e^{rxi}\,dx = \pi q^{p-1} e^{-qr} =$ 12) $\int \frac{(xi)^p}{q^2+x^2}\, e^{-rxi}\,dx$ (IV, 212).

13) $\int \frac{(xi)^{p+1}}{q^2-x^2}\, e^{-rxi}\,dx = \pi q^p\, Cos\left\{\frac{p+2}{2}\pi - qr\right\}$ (IV, 212).

14) $\int \frac{e^{pxi}\,dx}{(q+xi)^r} = \frac{2\pi}{\Gamma(r)}\, p^{r-1} e^{-pq}$ (IV, 211).

15) $\int \frac{e^{-pxi}\,dx}{(q+xi)^r} = 0 =$ 16) $\int \frac{e^{pxi}\,dx}{(q-xi)^r}$ (IV, 211).

17) $\int \frac{e^{-pxi}}{1+x^2}\, \frac{dx}{(xi)^{1-q}} = (-1)^{q-1}\pi e^p$

18) $\int \frac{e^{-pxi}}{1-x^2}\, \frac{dx}{(xi)^{1-q}} = -\frac{1}{2}\pi\, Cos\left(\frac{1}{2}q\pi - p\right)$

$\Big\}$ $[q<1]$ (IV, 210).

19) $\int \frac{e^{-pxi}}{q^2+x^2}\, \frac{dx}{x^r} = \frac{\pi}{q^{r+1}}\, e^{-pq+\frac{1}{2}r\pi i}$ (IV, 210).

20) $\int \frac{e^{-pxi}}{(s+xi)^r}\, \frac{dx}{q^2+x^2} = \frac{\pi}{q}\, \frac{e^{-pq}}{(q+s)^r}$ (VIII, 609).

21) $\int \frac{e^{-pxi}}{(s+xi)^t (s_1+xi)^{t_1}\cdots}\, \frac{dx}{q^2+r^2x^2} = \frac{\pi}{q}\, e^{-\frac{pq}{r}} (q+sr)^{-t}(q+s_1 r)^{-t_1}\cdots$ (VIII, 609*).

22) $\int \frac{e^{xi}\,dx}{\sqrt{q+xi}} = 2e^{-q}\sqrt{\pi}$ (IV, 212).

23) $\int e^{q+xi+\frac{pi}{4(q+xi)}}\, \frac{dx}{\sqrt{q+xi}} = (e^{\sqrt{pi}} + e^{-\sqrt{pi}})\sqrt{\pi}$ (IV, 212).

F. Algébrique; Exponentielle. TABLE 104. Lim. diverses.

1) $\int_0^{2\pi} e^{axi}\, x\,dx = -\frac{2\pi i}{a}$ (VIII, 363).

2) $\int_0^{2\pi} e^{qxi}\, x\,dx = \frac{1}{q^2}\left\{(1-2q\pi i)e^{2q\pi i} - 1\right\}$ (VIII, 362).

3) $\int_0^{2\pi} \frac{e^{-axi}}{1-pe^{xi}}\, x\,dx = p^a\left\{2\pi^2 + 2\pi i\, l(1-p) + 2\pi i \sum_1^a \frac{1}{np^n}\right\}$ (VIII, 484).

4) $\int_0^{l2}(e^x-1)^{q-1}xe^x\,dx=\frac{1}{q}\left\{l2+\sum_1^\infty\frac{(-1)^{n-1}}{q+n+1}\right\}$ V. T. 106, N. 4.

5) $\int_0^{l2}\frac{x\,dx}{1-e^{-x}}=\frac{1}{12}\pi^2$ V. T. 114, N. 1.

6) $\int_0^{l2}\frac{e^x x^2\,dx}{(e^x-1)^2}=\frac{1}{6}\pi^2-2(l2)^2$ V. T. 104, N. 5.

7) $\int_0^{l2}\frac{x\,dx}{e^x+2e^{-x}-2}=\frac{1}{8}\pi l2$ V. T. 114, N. 3.

8) $\int_0^{l2}\frac{e^x-2e^{-x}}{(e^x+2e^{-x}-2)^2}x^2\,dx=\frac{\pi}{4}l2-(l2)^2$ V. T. 104, N. 7.

9) $\int_0^{l\frac{1+p}{1-p}}\frac{1-e^{-x}}{(p^2-q^2)(1+e^{2x})+2(p^2+q^2)e^x}\,\frac{xe^x\,dx}{\sqrt{(p^2-1)(e^{2x}+1)+2(p^2+1)e^x}}=\frac{\pi}{2pq\sqrt{1-q^2}}$
$l\frac{pq-\{1-\sqrt{1-q^2}\}\{1-\sqrt{1-p^2}\}}{pq+\{1-\sqrt{1-q^2}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

10) $\int_1^\infty e^{-px}\frac{dx}{x}=-Ei(-p)$ (IV, 214).

11) $\int_1^\infty e^{-\frac{x}{p}}\frac{dx}{\sqrt{x-1}}=\frac{\sqrt{p\pi}}{\sqrt[p]{e}}$ (IV, 214).

12) $\int_1^\infty e^{-px}\frac{dx}{x^a}=\frac{(-p)^{a-1}}{1^{a-1/1}}\left\{\mathrm{A}+lp-\sum_1^{a-1}\frac{1}{n}\right\}-\sum_1^{a-1}\frac{1}{1^{n-1/1}}\,\frac{(-p)^{n-1}}{a-n}+\sum_1^\infty\frac{(-p)^{a+n-1}}{n\,.\,1^{a+n/1}}$ (IV, 214*).

13) $\int_1^\infty\frac{1}{e^{px}+e^{-px}}\,\frac{dx}{x}=\frac{1}{\pi}\sum_0^\infty\frac{(-1)^n}{2n+1}\,l\left\{1+\left(\frac{2n+1}{2p}\pi\right)^2\right\}$ (IV, 214*).

14) $\int_1^\infty\frac{1}{e^{px}-e^{-px}}\,\frac{dx}{x}=\frac{1}{2p}+\frac{1}{\pi}\sum_1^\infty\frac{(-1)^n}{n}Arctg\frac{n\pi}{p}$ (IV, 214*).

15) $\int_1^\infty\frac{e^{\frac{1}{2}px}}{e^{px}-e^{-px}}\,\frac{dx}{x}=\frac{1}{2p}+\frac{1}{\pi}\sum_1^\infty\frac{(-1)^n}{n}Arctg\frac{2n\pi}{p}+\frac{1}{2\pi}\sum_0^\infty\frac{(-1)^n}{2n+1}\,l\left\{1+\left(\frac{2n+1}{p}\pi\right)^2\right\}$ (IV, 214*).

16) $\int_{-1}^\infty\frac{e^{-qx}\,dx}{\sqrt{1+x}}=e^q\sqrt{\frac{\pi}{q}}$ (IV, 215*).

F. Algébr.; Expon. } Intégr. Limites. [Lim. $k=\infty$]. TABLE 105. Lim. diverses.

1) $\int_0^\infty x^k e^{-x}\,dx=e^{-k}k^k\sqrt{2k\pi}$ (IV, 170).

2) $\int_0^\infty\frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}}e^{-krx}\frac{dx}{x^s}=0\,[s<1]$ (VIII, 318).

3) $\int_0^\infty\frac{e^{-kx}}{e^x+e^{-x}}\,\frac{dx}{\sqrt{x}}=0=$

4) $\int_0^\infty\frac{e^{-kx}}{e^x+e^{-x}+1}\,\frac{dx}{\sqrt{x}}$ (VIII, 317).

5) $\int_0^{\frac{1}{k}} \frac{x^{p-1} e^{-qx} dx}{k^{-2}+(b-x)^2} = \frac{\pi k}{2\Gamma(p)} b^{p-1} e^{-bq}$ (IV, 212*).

6) $\int_0^p (e^{-kqx} - e^{-krx}) \frac{dx}{x} = l\frac{r}{q}$ (VIII, 380).

7) $\int_1^q e^{\pm\frac{x}{k}} \frac{dx}{x} = lq$ (VIII, 319).

8) $\int_a^b \left(e^{-\frac{px}{k}} - e^{-\frac{qx}{k}}\right) \frac{dx}{x} = 2l\frac{q}{p}\,[ab<0], = 0\,[ab>0]$ (VIII, 383).

$\frac{qx}{k}$

F. Alg. rat. ent.; Log. en num. $l(1\pm x^a)$. TABLE 106. Lim. 0 et 1.

1) $\int l(1+x).x\,dx = \frac{1}{4}$

2) $\int l(1+x).x^{2a}\,dx = \frac{2}{2a+1} l2 + \frac{1}{2a+1} \sum_1^{2a+1} \frac{(-1)^n}{n}$

3) $\int l(1+x).x^{2a-1}\,dx = \frac{1}{2a} \sum_1^{2a} \frac{(-1)^{n-1}}{n}$

Sur 1) à 3) voyez Oettinger, Gr. 39, 121.

4) $\int l(1+x).x^{q-1}\,dx = \frac{1}{q}\left\{l2 + \sum_0^\infty \frac{(-1)^{n-1}}{q+n+1}\right\}$ (VIII, 592).

5) $\int l(1+x).(1+x)^{q-1}\,dx = \frac{1}{q} 2^q\, l2 - \frac{1}{q^2}(2^q-1)$ Oettinger, Gr. 39, 121.

6) $\int l(1-x).x\,dx = -\frac{3}{4}$ (IV, 216).

7) $\int l(1-x).x^{a-1}\,dx = -\frac{1}{a}\sum_1^a \frac{1}{n}$

8) $\int l(1-x).(1-x)^{q-1}\,dx = -\frac{1}{q^2}$

9) $\int l(1+x^2).x^{2a}dx = \frac{1}{2a+1}\left\{l2 + (-1)^a \frac{\pi}{2} + 2(-1)^{a-1} \sum_0^{2a} \frac{(-1)^n}{2n+1}\right\}$

10) $\int l(1+x^2).x^{4a+1}\,dx = \frac{1}{2a+1}\left\{l2 - \frac{1}{2}\sum_0^{2a} \frac{(-1)^n}{n+1}\right\}$

11) $\int l(1+x^2).x^{4a-1}\,dx = \frac{1}{4a}\sum_0^{2a}\frac{(-1)^n}{n+1}$

Sur 7) à 11) voyez Oettinger, Gr. 39, 121.

12) $\int l(1+x^2).x^{p-1}\,dx = \frac{1}{p}\left\{l2 - 2\sum_0^\infty \frac{(-1)^n}{p+2n+2}\right\}$ (VIII, 592).

13) $\int l(1-x^2).x^{2a-1}\,dx = -\frac{1}{2a}\sum_1^a \frac{1}{n}$

14) $\int l(1-x^2).x^{2a}\,dx = \frac{2}{2a+1}\left\{l2 - \sum_1^a \frac{1}{2n+1}\right\}$

Sur 13) et 14) voyez Oettinger, Gr. 39, 121.

15) $\int l(1-x^2).\{px^{p-1}-qx^{q-1}\}dx = Z'\left\{\left(\frac{1}{2}p+1\right)-Z'\left(\frac{1}{2}q+1\right)\right\}$ V. T. 2, N. 9.

16) $\int l(1+x^3).x^{6a}dx = \frac{1}{6a+1}\left\{2l2+\frac{\pi}{\sqrt{3}}-3\sum_0^{2a}\frac{(-1)^n}{3n+1}\right\}$

17) $\int l(1+x^3).x^{6a+1}dx = \frac{1}{6a+2}\left\{\frac{\pi}{\sqrt{3}}-3\sum_0^{2a}\frac{(-1)^n}{3n+2}\right\}$

18) $\int l(1+x^3).x^{6a+2}dx = \frac{1}{6a+3}\left\{2l2+\sum_1^{2a+1}\frac{(-1)^n}{n}\right\}$

19) $\int l(1+x^3).x^{6a+3}dx = \frac{1}{6a+4}\left\{-\frac{\pi}{\sqrt{3}}+3\sum_0^{2a+1}\frac{(-1)^n}{3n+1}\right\}$

20) $\int l(1+x^3).x^{6a+4}dx = \frac{1}{6a+5}\left\{2l2-\frac{\pi}{\sqrt{3}}+3\sum_0^{2a+1}\frac{(-1)^n}{3n+2}\right\}$

21) $\int l(1+x^3).x^{6a+5}dx = \frac{1}{6a+6}\sum_1^{2a+2}\frac{(-1)^{n-1}}{n}$

22) $\int l(1-x^3).x^{3a}\,dx = \frac{1}{6a+2}\left\{l3+\frac{\pi}{\sqrt{3}}-6\sum_0^{a}\frac{1}{3n+1}\right\}$

23) $\int l(1-x^3).x^{3a+1}\,dx = \frac{1}{6a+4}\left\{l3-\frac{\pi}{\sqrt{3}}-6\sum_0^{a}\frac{1}{3n+2}\right\}$

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24) $\int l(1-x^3).x^{3a+2}\,dx = -\frac{1}{3a+3}\sum_1^{a+1}\frac{1}{n}$

25) $\int l(1+x^4).x^{4a}\,dx = \frac{1}{4a+1}\left\{l2+\frac{(-1)^a}{\sqrt{2}}\left(\pi+l\frac{2+\sqrt{2}}{2-\sqrt{2}}\right)+(-1)^a\sum_0^{a}\frac{(-1)^n}{4n+1}\right\}$

26) $\int l(1+x^4).x^{4a+1}dx = \frac{1}{4a+2}\left\{l2+\frac{1}{2}(-1)^a\pi+2(-1)^a+2(-1)^{a-1}\sum_0^{a}\frac{(-1)^n}{2n+1}\right\}$

27) $\int l(1+x^4).x^{4a+2}\,dx = \frac{1}{4a+3}\left\{l2+\frac{(-1)^a}{\sqrt{2}}\left(\pi+l\frac{2-\sqrt{2}}{2+\sqrt{2}}\right)+(-1)^a\sum_0^{a}\frac{(-1)^n}{4n+3}\right\}$

28) $\int l(1+x^4).x^{8a+3}\,dx = \frac{1}{4a+2}\left\{l2+\frac{1}{2}\sum_1^{2a+1}\frac{(-1)^n}{n}\right\}$ 4

29) $\int l(1+x^4).x^{8a-1}\,dx = \frac{1}{8a}\sum_1^{2a}\frac{(-1)^{n-1}}{n}$

30) $\int l(1-x^4).x^{4a}\,dx = \frac{1}{4a+1}\left\{3l2+\frac{1}{2}\pi-4\sum_0^{a}\frac{1}{4n+1}\right\}$

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F. Alg. rat. ent.; Log. en num. $l(1\pm x^a)$. — **TABLE 106, suite.** — Lim. 0 et 1.

31) $\int l(1-x^4).x^{4a+1}\,dx = \frac{1}{2a+1}\left\{l2 - \sum_0^a \frac{1}{2n+1}\right\}$

32) $\int l(1-x^4).x^{4a+2}\,dx = \frac{1}{4a+3}\left\{3\,l2 - \frac{1}{2}\pi - 4\sum_0^a \frac{1}{4n+3}\right\}$

33) $\int l(1-x^4).x^{4a+3}\,dx = \frac{-1}{4a+4}\sum_1^{a+1}\frac{1}{n}$

34) $\int \{l(1+x^q)\}^a.(1+x^q)^r x^{q-1}\,dx = (-1)^{a-1}\frac{1^{a/1}}{q(r+1)^{a+1}} + \frac{2^{r+1}}{q}\sum_1^a \frac{1^{n/1}}{(r+1)^n}\,\frac{1}{2^n}$

35) $\int \{l(1-x^q)\}^a.(1-x^q)^r x^{q-1}\,dx = (-1)^a\frac{1^{a/1}}{q(r+1)^{a+1}}$

Sur 16) à 35) voyez Oettinger, Gr. 39, 121.

F. Alg. rat. ent.; Log. en num. d' autre forme. — **TABLE 107.** — Lim. 0 et 1.

1) $\int l\frac{1}{x}.x^p\,dx = \frac{1}{(p+1)^2}$ (VIII, 576).

2) $\int \left(l\frac{1}{x}\right)^{a-\frac{1}{2}}.x^{p-1}\,dx = \frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 98, N. 2.

3) $\int \left(l\frac{1}{x}\right)^{q-1}.x^{p-1}\,dx = \frac{1}{p^q}\Gamma(q)$ (VIII, 554).

4) $\int \left(l\frac{1}{x}\right)^{p-1}.x^{q+ri-1}\,dx = \frac{\Gamma(p)}{(q+ri)^p}$ V. T. 81, N. 3.

5) $\int l\frac{1}{x}.(1-x)^{q-1}x^{p-1}\,dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\{Z'(p+q)-Z'(p)\}, = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\sum_0^q \frac{1}{n+p-1}$ [q entier] (IV, 215).

6) $\int (lx)^b.(1+x^q)^a x^{p-1}\,dx = (-1)^b\,1^{b/1}\sum_0^a \binom{a}{n}\frac{1}{(p+nq)^{b+1}}$ Oettinger, Gr. 39, 241.

7) $\int (lx)^b.(1-x^q)^a x^{p-1}\,dx = (-1)^b\,1^{b/1}\sum_0^a \binom{a}{n}\frac{(-1)^n}{(p+nq)^{b+1}}$ (IV, 215).

8) $\int \left\{\left(l\frac{1}{x}\right)^{q-1} - x^{p-1}(1-x)^{q-1}\right\}dx = \frac{\Gamma(1+q)}{q\Gamma(p+q)}\{\Gamma(p+q)-\Gamma(p)\}$ V. T. 81, N. 14.

9) $\int l\left(x+\frac{1}{x}\right).x^{2a-1}\,dx = \frac{1}{a}\left\{\frac{1}{2a} + l2 - \sum_0^\infty \frac{(-1)^n}{2a+n+1}\right\}$ (VIII, 422).

10) $\int l(1+x+x^2).x^{3a}\,dx = \frac{1}{3a+1}\left\{\frac{3}{2}l3 + \frac{\pi}{2\sqrt{3}} - 2 + \sum_1^a \frac{9n-1}{(3n-1)3n(3n+1)}\right\}$

11) $\int l(1+x+x^2).x^{3a+1}\,dx = \frac{1}{3a+2}\left\{\frac{3}{2}l3 - \frac{\pi}{2\sqrt{3}} + \sum_1^a \frac{9n+2}{3n(3n+1)(3n+2)}\right\}$

12) $\int l(1+x+x^2).x^{3a-1}\,dx = \frac{1}{3a}\sum_0^{a-1} \frac{9n+5}{(3n+1)(3n+2)(3n+3)}$

13) $\int l(1-x+x^2).x^{3a}\,dx = \frac{(-1)^a}{3a+1}\left\{\frac{\pi}{\sqrt{3}} - 2 + \sum_1^a \frac{(-1)^n(9n+1)}{(3n-1)3n(3n+1)}\right\}$

14) $\int l(1-x+x^2).x^{3a+1}\,dx = \frac{(-1)^a}{3a+2}\left\{\frac{\pi}{\sqrt{3}} - 2 + \sum_1^a \frac{(-1)^n(9n+4)}{3n(3n+1)(3n+2)}\right\}$

15) $\int l(1-x+x^2).x^{3a-1}\,dx = \frac{(-1)^{a-1}}{3a}\sum_0^{a-1} \frac{(-1)^n(9n+7)}{(3n+1)(3n+2)(3n+3)}$

16) $\int l(1+x^2+x^4).x^{6a}dx = \frac{1}{6a+1}\left\{\frac{3}{2}l3 + \frac{1}{2}\pi\sqrt{3} - 4 + 4\sum_1^a \frac{18n-5}{(6n-3)(6n-1)(6n+1)}\right\}$

17) $\int l(1+x^2+x^4).x^{6a+1}dx = \frac{1}{6a+2}\left\{\frac{3}{2}l3 + \frac{\pi}{2\sqrt{3}} - 2 + \sum^a \frac{9n-1}{(3n-1)3n(3n+1)}\right\}$

18) $\int l(1+x^2+x^4).x^{6a+2}dx = \frac{4}{3(2a+1)}\left\{\frac{1}{2} + \sum_0^a \frac{18n+1}{(6n-1)(6n+1)(6n+3)}\right\}$

19) $\int l(1+x^2+x^4).x^{6a+3}dx = \frac{1}{6a+4}\left\{\frac{3}{2}l3 - \frac{\pi}{2\sqrt{3}} + \sum_1^a \frac{9n+2}{3n(3n+1)(3n+2)}\right\}$

20) $\int l(1+x^2+x^4).x^{6a+4}dx = \frac{1}{6a+5}\left\{\frac{3}{2}l3 - \frac{1}{2}\pi\sqrt{3} + 4\sum_1^a \frac{18n+7}{(6n+1)(6n+3)(6n+5)}\right\}$

21) $\int l(1+x^2+x^4).x^{6a+5}dx = \frac{1}{6a+6}\sum_0^a \frac{9n+5}{(3n+1)(3n+2)(3n+3)}$

Sur 10) à 21) voyez Oettinger, Gr. 39, 241.

22) $\int l(q+lx).x^{p-1}\,dx = \frac{1}{p}\left\{lq - e^{-pq}\,Ei(pq)\right\}$ V. T. 125, N. 1.

23) $\int l(q-lx).x^{p-1}\,dx = \frac{1}{p}\left\{lq - e^{pq}\,Ei(-pq)\right\}$ V. T. 125, N. 2.

1) $\int lx\frac{dx}{1+x} = -\frac{1}{12}\pi^2$ (VIII, 264).

2) $\int lx\frac{x\,dx}{1+x} = \frac{1}{12}\pi^2 - 1$ V. T. 30, N. 2 et T. 108, N. 1.

3) $\int lx \frac{x^2\,dx}{1+x} = \frac{3}{4} - \frac{1}{12}\pi^2$ V. T. 107, N. 1 et T. 108, N. 2.

4) $\int lx.x^{2a} \frac{dx}{1+x} = -\frac{1}{12}\pi^2 + \sum_1^{2a} \frac{(-1)^{n-1}}{n^2}$

5) $\int lx.x^{2a-1} \frac{dx}{1+x} = \frac{1}{12}\pi^2 + \sum_1^{2a-1} \frac{(-1)^n}{n^2}$

Sur 4) et 5) voyez Oettinger, Gr. 39, 425.

6) $\int lx \frac{dx}{1-x} = -\frac{1}{6}\pi^2$ (VIII, 264).

7) $\int lx \frac{x\,dx}{1-x} = 1 - \frac{1}{6}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

8) $\int lx.x^{p-1} \frac{dx}{1-x} = -\sum_0^\infty \frac{1}{(p+n)^2}$ (IV, 217).

9) $\int lx \frac{1+x}{1-x}\,dx = 1 - \frac{1}{3}\pi^2$ V. T. 30, N. 2 et T. 108, N. 6.

10) $\int lx \frac{dx}{1+x^2} = \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ (VIII, 474).

11) $\int lx \frac{dx}{1-x^2} = -\frac{1}{8}\pi^2$ (VIII, 567).

12) $\int lx \frac{x^{q-1}\,dx}{1-x^{2q}} = -\frac{\pi^2}{8q^2}$ (VIII, 567).

13) $\int lx \frac{1-x^2}{1+x^{2p}} x^{p-2}\,dx = -\left(\frac{\pi}{2p}\right)^2 Sin\frac{\pi}{2p}.Sec^2\frac{\pi}{2p}$ (IV, 217).

14) $\int lx \frac{1+x^2}{1-x^{2p}} x^{p-2}\,dx = -\left(\frac{\pi}{2p}\right)^2 Sec^2\frac{\pi}{2p}$ (IV, 217).

15) $\int lx \frac{x^{a-1}+x^{b-a-1}}{1-x^b}\,dx = -\left(\frac{\pi}{b}\right)^2 Cosec^2\frac{a\pi}{b}$ (IV, 217).

F. Alg. rat. fract. à dén. binôme; Log. en num. $(lx)^a$ pour a spécial. TABLE 109. Lim. 0 et 1.

1) $\int (lx)^2.x^a \frac{dx}{1+x} = (-1)^a \sum_a^\infty \frac{(-1)^n}{(n+1)^3}$

2) $\int (lx)^2.x^a \frac{dx}{1-x} = 2\sum_a^\infty \frac{1}{(1+n)^3}$

Sur 1) et 2) voyez Oettinger, Gr. 39, 425.

3) $\int (lx)^2 \frac{dx}{1+x^2} = \frac{1}{16}\pi^3$ (IV, 219).

4) $\int (lx)^2.x^{2a} \frac{dx}{1-x^2} = 2\sum_a^\infty \frac{1}{(2n+1)^3}$ Oettinger, Gr. 39, 425.

5) $\int (lx)^2 \frac{1+x^2}{1+x^4} dx = \frac{3}{64}\pi^3 \sqrt{2}$ (VIII, 568). 6) $\int (lx)^2 \frac{1-x^4}{1-x^6} dx = \frac{1}{27}\pi^3 \sqrt{3}$ (IV, 219).

7) $\int (lx)^2 \frac{x^{p-q-1}+x^{p+q-1}}{1+x^{2p}} dx = \frac{\pi^3}{8p^3}\left(2\, Sec^3 \frac{q\pi}{2p} - Sec \frac{q\pi}{2p}\right)$ (VIII, 568).

8) $\int (lx)^2 \frac{x^{p-q-1}-x^{p+q-1}}{1-x^{2p}} dx = \frac{\pi^3}{4p^3} Sin \frac{q\pi}{2p} . Sec^3 \frac{q\pi}{2p}$ (VIII, 568).

9) $\int (lx)^3 \frac{dx}{1+x} = -\frac{7}{120}\pi^4$ (IV, 220).

10) $\int (lx)^3 . x^a \frac{dx}{1+x} = (-1)^{a-1} \sum_a^\infty \frac{(-1)^n}{(n+1)^4}$ Oettinger, Gr. 39, 425.

11) $\int (lx)^3 \frac{dx}{1-x} = -\frac{1}{15}\pi^4$ (IV, 220).

12) $\int (lx)^3 . x^a \frac{dx}{1-x} = -\frac{1}{15}\pi^4 + 6 \sum_1^a \frac{1}{n^4}$ Oettinger, Gr. 39, 425.

13) $\int (lx)^3 \frac{dx}{1-x^2} = -\frac{1}{16}\pi^4$ V. T. 109, N. 9, 11.

14) $\int (lx)^3 . x^{2a} \frac{dx}{1-x^2} = -\frac{1}{16}\pi^4 + 6 \sum_1^a \frac{1}{(2n-1)^4}$

15) $\int (lx)^3 \frac{x^{q-1}-x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^4 Cosec^4 \frac{q\pi}{p} . Cos \frac{q\pi}{p} . \left(6 - Sin^2 \frac{q\pi}{p}\right)$

Oettinger, Gr. 39, 425.

16) $\int (lx)^3 \frac{x^{q-1}+x^{p-q-1}}{1-x^p} dx = -2\left(\frac{\pi}{p}\right)^4 Cosec^4 \frac{q\pi}{p} . \left(1 + 2\, Cos^2 \frac{q\pi}{p}\right)$ (IV, 219).

17) $\int (lx)^4 \frac{dx}{1+x^2} = \frac{5}{64}\pi^5$ (IV, 220).

18) $\int (lx)^4 \frac{x^{q-1}+x^{p-q-1}}{1+x^p} dx = \left(\frac{\pi}{p}\right)^5 Cosec^5 \frac{q\pi}{p} . \left(24 - 20\, Sin^2 \frac{q\pi}{p} + Sin^4 \frac{q\pi}{p}\right)$

19) $\int (lx)^4 \frac{x^{q-1}-x^{p-q-1}}{1-x^p} dx = 8\left(\frac{\pi}{p}\right)^5 Cosec^5 \frac{q\pi}{p} . Cos \frac{q\pi}{p} . \left(2 + Cos^2 \frac{q\pi}{p}\right)$

Sur 18) et 19) voyez Oettinger, Gr. 39, 425.

20) $\int (lx)^5 \frac{dx}{1+x} = -\frac{31}{252}\pi^6$ (IV, 220). 21) $\int (lx)^5 \frac{dx}{1-x} = -\frac{8}{63}\pi^6$ (IV, 220).

22) $\int (lx)^5 \frac{dx}{1-x^2} = -\frac{1}{8}\pi^6$ V. T. 109, N. 20, 21.

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23) $\int (lx)^5 \frac{x^{q-1}-x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^6 Cosec^6 \frac{q\pi}{p}.Cos\frac{q\pi}{p}.\left(120-60\,Sin^2\frac{q\pi}{p}+Sin^4\frac{q\pi}{p}\right)$

24) $\int (lx)^5 \frac{x^{q-1}+x^{p-q-1}}{1-x^p} dx = -8\left(\frac{\pi}{p}\right)^6 Cosec^6 \frac{q\pi}{p}.\left(15-15\,Sin^2\frac{q\pi}{p}+2\,Sin^4\frac{q\pi}{p}\right)$

Sur 23) et 24) voyez Oettinger, Gr. 39, 425.

25) $\int (lx)^6 \frac{dx}{1+x^2} = \frac{61}{256}\pi^7$ (IV, 221).

26) $\int (lx)^6 \frac{x^{q-1}+x^{p-q-1}}{1+x^p} dx = \left(\frac{\pi}{p}\right)^7 Cosec^7 \frac{q\pi}{p}.\left(720-840\,Sin^2\frac{q\pi}{p}+182\,Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$

27) $\int (lx)^6 \frac{x^{q-1}-x^{p-q-1}}{1-x^p} dx = 16\left(\frac{\pi}{p}\right)^7 Cosec^7 \frac{q\pi}{p}.Cos\frac{q\pi}{p}.\left(45-30\,Sin^2\frac{q\pi}{p}+2\,Sin^4\frac{q\pi}{p}\right)$

Sur 26) et 27) voyez Oettinger, Gr. 39, 425.

28) $\int (lx)^7 \frac{dx}{1+x} = -\frac{127}{240}\pi^8$ (IV, 221).

29) $\int (lx)^7 \frac{dx}{1-x} = -\frac{8}{15}\pi^8$ V. T. 109, N. 28, 30.

30) $\int (lx)^7 \frac{dx}{1-x^2} = -\frac{17}{32}\pi^8$ (IV, 221).

31) $\int (lx)^7 \frac{x^{q-1}-x^{p-q-1}}{1+x^p} dx = -\left(\frac{\pi}{p}\right)^8 Cosec^8 \frac{q\pi}{p}.Cos\frac{q\pi}{p}.\left(5040-4200\,Sin^2\frac{q\pi}{p}+\right.$
$\left.+546\,Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$

32) $\int (lx)^7 \frac{x^{q-1}+x^{p-q-1}}{1-x^p} dx = -16\left(\frac{\pi}{p}\right)^8 Cosec^8 \frac{q\pi}{p}.\left(315-420\,Sin^2\frac{q\pi}{p}+126\,Sin^4\frac{q\pi}{p}-4Sin^6\frac{q\pi}{p}\right)$

33) $\int (lx)^8 \frac{x^{q-1}-x^{p-q-1}}{1-x^p} dx = 128\left(\frac{\pi}{p}\right)^9 Cosec^9 \frac{q\pi}{p}.Cos\frac{q\pi}{p}.\left(315-315\,Sin^2\frac{q\pi}{p}+\right.$
$\left.+63\,Sin^4\frac{q\pi}{p}-Sin^6\frac{q\pi}{p}\right)$ Sur 31) à 33) voyez Oettinger, Gr. 39, 425.

F. Alg. rat. fract. à dén. binôme; Log. en num. $(lx)^a$ pour a général. TABLE 110. Lim. 0 et 1.

1) $\int (lx)^{2a} \frac{dx}{1+x} = \frac{2^{2a}-1}{2^{2a}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ (IV, 221).

2) $\int (lx)^{2a-1} \frac{dx}{1+x} = \frac{1-2^{2a-1}}{2a}\pi^{2a} B_{2a-1}$ (VIII, 577).

3) $\int (lx)^{a-1} \frac{dx}{1+x} = 1^{a-1/1} \sum_0^\infty \frac{(-1)^{n+a-1}}{(n+1)^a}$ (VIII, 577).

4) $\int (lx)^{b-1} \frac{x^q\, dx}{1+x} = 1^{b-1/1} \sum_0^\infty \frac{(-1)^{n+b-1}}{(q+n+1)^b}$ (VIII, 577).

5) $\int (lx)^{2a-1} \frac{dx}{1-x} = -\frac{1}{a} 2^{2a-2} \pi^{2a} B_{2a-1}$ (VIII, 577).

6) $\int (lx)^{a-1} \frac{dx}{1-x} = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^a}$ (VIII, 577).

7) $\int (lx)^{b-1} \frac{x^q\, dx}{1-x} = (-1)^{b-1} 1^{b-1/1} \sum_0^\infty \frac{1}{(q+n+1)^b}$ (VIII, 577).

8) $\int (lx)^{p-1} \frac{x^{r-1}\, dx}{1-qx^r} = \frac{1}{qr^p} \Gamma(p) \sum_1^\infty \frac{q^n}{n^p}$ V. T. 83, N. 5.

9) $\int (lx)^{a-1} \frac{1-x^b}{1-x}\, dx = (-1)^{a-1} 1^{a/1} \sum_1^b \frac{1}{n^a}$ (IV, 222).

10) $\int (lx)^q . (x-1)^a x^{p-1} \left(p + \frac{ax}{x-1}\right) dx = (-1)^q \Gamma(q)\, \Delta^a . p^{-q}$ V. T. 83, N. 13.

11) $\int (lx)^a \frac{dx}{1+x^2} = (-1)^a 1^{a/1} \sum_0^\infty \frac{(-1)^n}{(2n+1)^{a+1}}$ (VIII, 474).

12) $\int (lx)^{2a} \frac{dx}{1-x^2} = \frac{2^{2a+1}-1}{2^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ (IV, 222).

13) $\int (lx)^{p-1} \frac{x^q\, dx}{1-x^2} = (-1)^{p-1} \Gamma(p) \sum_0^\infty \frac{1}{(q+2n+1)^p}$ V. T. 307, N. 11.

14) $\int (lx)^a \frac{x^{p-1}\, dx}{1+x^q} = (-1)^a 1^{a/1} \sum_0^\infty \frac{(-1)^n}{(p+nq)^{a+1}}$ Oettinger, Gr. 39, 241.

15) $\int (lx)^a \frac{x^{p-1}\, dx}{1-x^q} = (-1)^a 1^{a/1} \sum_0^\infty \frac{1}{(p+nq)^{a+1}}$ (IV, 223).

16) $\int (lx)^{2a-1} \frac{x^p + x^{-p}}{1-x^q} x^{q-1}\, dx = -\sum_a^\infty \frac{(2\pi)^{2n}}{2n} \frac{1}{1^{2n-2a/1}} \left(\frac{p}{q}\right)^{2n-2a} B_{2n-1}$ V. T. 83, N. 12.

F. Alg. rat. fract. à dén. puiss. de bin.; Log. en num. $(lx)^a$. TABLE 111. Lim. 0 et 1.

1) $\int lx \frac{dx}{(1+x)^2} = -l2$ (VIII, 590).

2) $\int lx \frac{1-(-1)^a x^{a+1}}{(1+x)^2}\, dx = -\frac{1}{12}(a+1)\pi^2 + \sum_1^a (-1)^{n-1} \frac{a-n+1}{n^2}$ Oettinger, Gr. 39, 425.
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3) $\int lx \frac{1-x^{a+1}}{(1-x)^2} dx = -\frac{1}{6}(a+1)\pi^2 + \sum_1^a \frac{a-n+1}{n^2}$ Oettinger, Gr. 39, 425.

4) $\int lx \frac{x\,dx}{(1+x^2)^2} = -\frac{1}{4} l2$ (VIII, 590).

5) $\int lx \frac{1-x^{2a+2}}{(1-x^2)^2} dx = -\frac{1}{8}(a+1)\pi^2 + \sum_1^a \frac{a-n+1}{(2n-1)^2}$ Oettinger, Gr. 39, 425.

6) $\int \left\{\frac{1+plx}{1-x} + \frac{x\,lx}{(1-x)^2}\right\} x^{p-1} dx = -1$ (VIII, 226).

7) $\int (lx)^2 \frac{1-(-1)^a x^{a+1}}{(1+x)^2} dx = 2(a+1)\sum_a^\infty \frac{(-1)^n}{(n+1)^3} + 2\sum_1^a \frac{(-1)^{n-1}}{n^2}$

8) $\int \frac{1-x^{a-1}}{(1-x)^2}(lx)^2 dx = 2(a+1)\sum_a^\infty \frac{1}{(1+n)^3} + 2\sum_1^a \frac{1}{n^2}$

9) $\int \frac{1-x^{2a+2}}{(1-x^2)^2}(lx)^2 dx = 2\sum_a^\infty \frac{1}{(2n+1)^3} + 2\sum_1^a \frac{n}{(2n-1)^3}$

10) $\int \frac{1-(-1)^a x^{a+1}}{(1+x)^2}(lx)^3 dx = -\frac{7}{120}(a+1)\pi^4 + 6\sum_1^a (-1)^{n-1}\frac{a-n+1}{n^4}$

11) $\int \frac{1-x^{a+1}}{(1-x)^2}(lx)^3 dx = -\frac{1}{15}(a+1)\pi^4 + 6\sum_1^a \frac{a-n+1}{n^4}$

12) $\int \frac{1-x^{2a+2}}{(1-x^2)^2}(lx)^3 dx = -\frac{1}{16}(a+1)\pi^4 + 6\sum_1^a \frac{a-n+1}{(2n-1)^4}$

Sur 7) à 12) voyez Oettinger, Gr. 39, 425.

F. Alg. rat. fract. à dén. bin. composé; Log. en num. $(lx)^a$. TABLE 112. Lim. 0 et 1.

1) $\int lx \frac{1-x^2}{1+x^2} \frac{dx}{x} = -\infty =$ 2) $\int lx \frac{1+x^2}{1-x^2} \frac{dx}{x}$ (IV, 218).

3) $\int lx \frac{x^{p+q}-x^{p-q}}{1+x^{2p}} \frac{dx}{x} = \frac{\pi^2}{4p^2} Sin\frac{q\pi}{2p} . Sec^2\frac{q\pi}{2p}$ (VIII, 567).

4) $\int lx \frac{x^{p+q}+x^{p-q}}{1-x^{2p}} \frac{dx}{x} = -\frac{\pi^2}{4p^2} Sec^2\frac{q\pi}{2p}$ (VIII, 567).

5) $\int lx \frac{x^p-x^{-p}}{(x^p+x^{-p})^2} \frac{dx}{x} = \frac{\pi}{4p^2}$ V. T. 2, N. 12.

6) $\int lx \frac{(p+q)(x^{p-q}-x^{q-p})+(p-q)(x^{p+q}-x^{-(p+q)})}{(x^p+x^{-p})^2}\frac{dx}{x}=\frac{\pi}{2p}Sec\frac{q\pi}{2p}\ [p>q)$ V. T. 4, N. 14.

7) $\int lx \frac{(p+q)(x^{p-q}-x^{q-p})+(q-p)(x^{p+q}-x^{-(p+q)})}{(x^p-x^{-p})^2}\frac{dx}{x}=-\frac{\pi}{2p}Tg\frac{q\pi}{2p}\ [p>q]$ V. T. 4, N. 15.

8) $\int lx \frac{x^q-x^{-q}}{(x^q+x^{-q})^{2p+1}}\frac{dx}{x}=\frac{1}{8pq^2}\frac{\{\Gamma(p)\}^2}{\Gamma(2p)}$ V. T. 4, N. 16.

9) $\int (lx)^{2a-1}\frac{1}{x^q-x^{-q}}\frac{dx}{x}=\frac{1-2^{2a}}{4a}\left(\frac{\pi}{q}\right)^{2a}B_{2a-1}$ V. T. 84, N. 14.

10) $\int (lx)^{2a-1}\frac{1+x^q}{1-x^q}\frac{dx}{x}=-\frac{1}{a}2^{2a-1}\left(\frac{\pi}{q}\right)^{2a}B_{2a-1}$ V. T. 83, N. 11.

11) $\int (lx)^{2a}\frac{1}{(x^q+x^{-q})^2}\frac{dx}{x}=\frac{2^{2a-1}-1}{(2q)^{2a+1}}\pi^{2a}B_{2a-1}$ V. T. 86, N. 2.

12) $\int (lx)^{2a+1}\frac{1}{(x^q+x^{-q})^2}\frac{dx}{x}=\frac{1-2^{2a}}{(4q)^{2a+1}q}1^{2a+1/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 86, N. 3.

13) $\int (lx)^p\frac{1}{(x^q+x^{-q})^2}\frac{dx}{x}=\frac{\Gamma(p+1)}{(-2q)^{p+1}}\sum_0^\infty\frac{(-1)^{n+1}}{(n+1)^p}$ V. T. 86, N. 6.

14) $\int (lx)^{2a}\frac{1}{(x^q-x^{-q})^2}\frac{dx}{x}=\frac{1}{4q^{2a+1}}\pi^{2a}B_{2a-1}$ V. T. 86, N. 5.

15) $\int (lx)^{2a+1}\frac{1}{(x^q-x^{-q})^2}\frac{dx}{x}=-\frac{1}{(2q)^{2a+2}}1^{2a+1/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 86, N. 4.

16) $\int (lx)^p\frac{1}{(x^q-x^{-q})^2}\frac{dx}{x}=-\frac{\Gamma(p+1)}{(-2q)^{p+1}}\sum_0^\infty\frac{1}{(n+1)^p}$ V. T. 86, N. 7.

17) $\int (lx)^{2a}\frac{x^q+x^{-q}}{x^p+x^{-p}}\frac{dx}{x}=\frac{\pi}{2p}\frac{d^{2a}}{dq^{2a}}.Sec\frac{q\pi}{2p}$ (VIII, 576).

18) $\int (lx)^{2a+1}\frac{x^q-x^{-q}}{x^p+x^{-p}}\frac{dx}{x}=\frac{\pi}{2p}\frac{d^{2a+1}}{dq^{2a+1}}.Sec\frac{q\pi}{2p}$ (VIII, 576).

19) $\int (lx)^{2a+1}\frac{x^q+x^{-q}}{x^p-x^{-p}}\frac{dx}{x}=\frac{\pi}{2p}\frac{d^{2a+1}}{dq^{2a+1}}.Cot\frac{q\pi}{2p}$ (VIII, 576).

20) $\int (lx)^{2a}\frac{x^q-x^{-q}}{x^p-x^{-p}}\frac{dx}{x}=\frac{\pi}{2p}\frac{d^{2a}}{dq^{2a}}.Cot\frac{q\pi}{2p}$ (VIII, 576).

21) $\int lx\frac{x^2}{1-x^2}\frac{dx}{1+x^4}=-\frac{\pi^2}{16(2+\sqrt{2})}$ (IV, 218).

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1) $\int lx \frac{dx}{1+x+x^2} = -\frac{2}{27}\pi^2$ (IV, 217*).

2) $\int lx \frac{x\,dx}{1+x+x^2} = -\frac{1}{54}\pi^2$ (IV, 218*).

3) $\int lx \frac{dx}{1-x+x^2} = -\frac{4}{27}\pi^2$ V. T. 88, N. 1.

4) $\int lx \frac{x\,dx}{1-x+x^2} = -\frac{5}{108}\pi^2$ V. T. 88, N. 2.

5) $\int lx \frac{Cos\lambda - x}{1-2x\,Cos\lambda + x^2}dx = -\frac{1}{6}\pi^2 + \frac{1}{2}\pi\lambda - \frac{1}{4}\lambda^2$ V. T. 88, N. 8.

6) $\int lx \frac{1-x^2}{1+2px^2+x^4}dx = \frac{\pi}{2\sqrt{2(p-1)}}\, l\frac{\sqrt{p-1}-\sqrt{p+1}+\sqrt{2}}{\sqrt{p-1}+\sqrt{p+1}-\sqrt{2}}\ [p^2>1], =$

$= -\frac{1}{8}\pi\, Arccos p\,.\sqrt{\frac{2}{1-p}}\ [p^2<1]$ V. T. 88, N. 9.

7) $\int (lx)^2 \frac{dx}{1+2x\,Cos\lambda+x^2} = \frac{1}{6}\lambda\, Cosec\lambda\,.(\pi^2-\lambda^2)$ V. T. 88, N. 3.

8) $\int (lx)^4 \frac{dx}{1+2x\,Cos\lambda+x^2} = \frac{1}{5}\lambda\, Cosec\lambda\,.(\pi-\lambda^2)(7\pi^2-3\lambda^2)$ V. T. 88, N. 4.

9) $\int (lx)^{2a} \frac{dx}{1+x^2-2x\,Cos 2p\pi} = \frac{1^{2a/1}}{Sin 2p\pi}\sum_1^\infty \frac{Sin 2np\pi}{n^{2a+1}}$ V. T. 88, N. 5.

10) $\int (lx)^{2a+1} \frac{Cos 2p\pi - x}{1+x^2-2x\,Cos 2p\pi}dx = 1^{2a+1/1}\sum_1^\infty \frac{Cos 2np\pi}{n^{2a+2}}$ V. T. 88, N. 6.

11) $\int (lx)^{r-1} \frac{Cos\lambda - px}{1+p^2x^2-2px\,Cos\lambda}x^{q-1}dx = (-1)^r\Gamma(r)\sum_1^\infty \frac{p^{n-1}Cos n\lambda}{(q+n-1)^r}$ V. T. 88, N. 10.

F. Alg. rat. fract.; Log. en num. d'autre forme ent. TABLE 114. Lim. 0 et 1.

1) $\int l(1+x)\frac{dx}{x} = \frac{1}{12}\pi^2$ (VIII, 265).

2) $\int l(1+x)\frac{(p-1)x^{p-1}-px^{-p}}{x}dx = 2\,l2 - \pi\, Cosec p\pi\ [p<1]$ V. T. 4, N. 1.

3) $\int l(1+x)\frac{dx}{1+x^2} = \frac{1}{8}\pi\, l2$ (VIII, 322).

4) $\int l(1+x)\frac{dx}{x(1+x)} = \frac{1}{12}\pi^2 - \frac{1}{2}(l2)^2$ V. T. 114, N. 25.

5) $\int l(1+x)\frac{dx}{(px+q)^2} = \frac{1}{p(p-q)}\, l\frac{p+q}{q} + \frac{2}{q^2-p^2}\, l2$ (VIII, 591*).

$$\left.\begin{array}{l}
6)\int l(1+x)\frac{dx}{(1+x)^{q+1}}=-\frac{1}{2^q q}\,l2+\frac{2^q-1}{2^q q^2}\\[2ex]
7)\int l(1+x)\frac{1+x^{2a+1}}{1+x}\,dx=2\,l2\,.\sum_0^a\frac{1}{2n+1}-\sum_1^{2a+1}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}\\[2ex]
8)\int l(1+x)\frac{1-x^{2a}}{1+x}\,dx=2\,l2\,.\sum_0^{a-1}\frac{1}{2n+1}-\sum_1^{2a}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}\\[2ex]
9)\int l(1+x)\frac{1-x^{2a}}{1-x}\,dx=2\,l2\,.\sum_0^{a-1}\frac{1}{2n+1}+\sum_1^{2a}\frac{(-1)^n}{n}\sum_1^n\frac{(-1)^{m-1}}{m}\\[2ex]
10)\int l(1+x)\frac{1-x^{2a+1}}{1-x}\,dx=2\,l2\,.\sum_0^a\frac{1}{2n+1}+\sum_1^{2a+1}\frac{(-1)^n}{n}\sum_1^n\frac{(-1)^{m-1}}{m}
\end{array}\right\}\text{Oettinger, Gr. 39, 121.}$$

$$11)\int l(1+x)\frac{1+x^2}{q^2+x^2}\,\frac{dx}{1+q^2x^2}=\frac{\pi}{2q(1+q^2)}\left\{\frac{\pi}{2}\,l(1+q^2)-2\,Arctg\,q\,.\,lq\right\}\text{ (VIII, 464).}$$

$$12)\int l(1+x)\frac{1+x^2}{(1+x)^4}\,dx=\frac{1}{4}\left(\frac{1}{2}-l2\right)\text{ V. T. 114, N. 13.}$$

$$13)\int l(1+x)\frac{1+x^2}{(px+q)^2}\,\frac{dx}{(qx+p)^2}=\frac{1}{p^2-q^2}\left[\frac{1}{q-p}\left\{\frac{p+q}{pq}\,l(p+q)+\frac{1}{p}\,lq+\frac{1}{q}\,lp\right\}+\frac{4}{q^2-p^2}\,l2\right]$$

V. T. 114, N. 5.

$$14)\int l(1-x)\frac{dx}{x}=-\frac{1}{6}\pi^2\text{ (VIII, 265).}$$

$$\left.\begin{array}{l}
15)\int l(1-x)\frac{1-(-1)^a x^a}{1+x}\,dx=\sum_1^a\frac{(-1)^n}{n}\sum_1^n\frac{1}{m}\\[2ex]
16)\int l(1-x)\frac{1-x^a}{1-x}\,dx=-\sum_1^a\frac{1}{n}\sum_1^n\frac{1}{m}
\end{array}\right\}\text{Oettinger, Gr. 39, 121.}$$

$$17)\int l(1-x)\frac{dx}{1+x^2}=\frac{\pi}{8}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}\text{ V. T. 114, N. 24 et T. 115, N. 19.}$$

$$18)\int l\left(1-\frac{1}{2}x\right)\frac{dx}{x}=\frac{1}{2}(l2)^2-\frac{1}{12}\pi^2\text{ (VIII, 699).}$$

$$19)\int l(1-2x)\frac{dx}{x}=-\frac{1}{4}\pi^2+\pi i\,l2\text{ (VIII, 699).}$$

$$20)\int l(p+x)\frac{dx}{p+x^2}=\frac{1}{2\sqrt{p}}\,Arccot(\sqrt{p})\,.\,l\{(1+p)p\}\text{ V. T. 114, N. 21.}$$

$$21)\int l(1+px)\frac{dx}{1+px^2}=\frac{1}{2\sqrt{p}}\,Arctg(\sqrt{p})\,.\,l(1+p)\text{ (VIII, 463*).}$$

22) $\int l(px+q)\,\frac{dx}{(1+x)^2}=\frac{1}{p-q}\left\{\frac{1}{2}(p+q)\,l(p+q)-q\,lq-p\,l2\right\}$ (VIII, 591*).

23) $\int l(1+px)\,\frac{1-x^2}{(1+x^2)^2}\,dx=\frac{1}{2}\,\frac{(1+p)^2}{1+p^2}\,l(1+p)-\frac{1}{2}\,\frac{p}{1+p^2}\,l2-\frac{\pi}{4}\,\frac{p^2}{1+p^2}$ (IV, 224).

24) $\int l(1+x^2)\,\frac{dx}{1+x^2}=\frac{1}{2}\pi\,l2-\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 26.

25) $\int l(1+x^2)\,\frac{dx}{x(1+x^2)}=\frac{1}{2}\left\{\frac{1}{12}\pi^2-\frac{1}{2}(l2)^2\right\}$ V. T. 114, N. 1.

26) $\int l(1-x^2)\,\frac{dx}{1+x^2}=\frac{\pi}{4}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 24 et T. 115, N. 20.

27) $\int l(Cos^2\lambda-x^2\,Sin^2\lambda)\,\frac{dx}{1-x^2}=-\lambda^2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

28) $\int l(q^2+x^2)\,\frac{dx}{(1+px)^2}=\frac{2}{1+p}\,lq+\frac{1}{1+p^2q^2}\left\{2q\,Arccot\,q+\frac{1-pq^2}{1+p}\,l\frac{1+q^2}{q^2}-\frac{2}{p}\,l(1+p)\right\}$ (VIII, 592).

29) $\int l(1-x^4)\,\frac{dx}{1+x^2}=\frac{3\pi}{4}\,l2+2\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 24, 26.

30) $\int l(1+x^p)\,\frac{dx}{x}=\frac{1}{12p}\pi^2$ V. T. 114, N. 1.

31) $\int l(1-x^p)\,\frac{dx}{x}=-\frac{1}{6p}\pi^2$ V. T. 114, N. 14.

32) $\int l(1+x+x^2)\,\frac{dx}{x}=\frac{1}{9}\pi^2$ V. T. 113, N. 1, 2. 33) $\int l(1-x+x^2)\,\frac{dx}{x}=-\frac{1}{18}\pi^2$ V. T. 113, N. 3, 4.

34) $\int l(1+2x\,Cos\,\lambda+x^2)\,\frac{dx}{x}=\frac{1}{6}\pi^2-\frac{1}{2}\lambda^2$ (VIII, 360*).

F. Alg. rat. fract.; Log. en num. de forme fract. TABLE 115. Lim. 0 et 1.

1) $\int l\frac{1+x}{2}\,\frac{dx}{1-x}=\frac{1}{2}(l2)^2-\frac{1}{12}\pi^2$ (VIII, 268).

2) $\int l\frac{1+p^2x^2}{1+p^2}\,\frac{dx}{1-x^2}=-(Arctg\,p)^2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

3) $\int l\frac{1+x}{x}\frac{dx}{1+x^2}=\frac{\pi}{8}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

4) $\int l\frac{(1+x)^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534*).

5) $\int l\frac{1-x}{x}\frac{dx}{1+x^2}=\frac{\pi}{8}l2$ V. T. 108, N. 10 et T. 114, N. 17.

6) $\int l\frac{(1-x)^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 17.

7) $\int l\frac{1+x^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{2}l2$ V. T. 108, N. 10 et T. 114, N. 24.

8) $\int l\frac{1+x^2}{x^2}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 24.

9) $\int l\frac{1-x^2}{x}\frac{dx}{1+x^2}=\frac{\pi}{4}l2$ V. T. 108, N. 10 et T. 114, N. 26.

10) $\int l\frac{1-x^2}{x^2}\frac{dx}{1+x^2}=\frac{\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 26.

11) $\int l\frac{1-x^4}{x}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 29.

12) $\int l\frac{1-x^4}{x^2}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2$ V. T. 108, N. 10 et T. 114, N. 29.

13) $\int l\frac{1-x^4}{x^3}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 29.

14) $\int l\frac{1-x^4}{x^4}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10 et T. 114, N. 29.

15) $\int l\frac{1+x}{1-x}\frac{dx}{x}=\frac{1}{4}\pi^2$ (VIII, 265).

16) $\int l\frac{px+q}{qx+p}\frac{dx}{(1+x)^2}=\frac{1}{p-q}\left[(p+q)l\frac{p+q}{2}-plp-qlq\right]$ V. T. 114, N. 22.

17) $\int l\frac{1+x}{1-x}\frac{dx}{1+x^2}=\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 3, 17.

18) $\int l\frac{1+x^2}{1+x}\frac{dx}{1+x^2}=\frac{3\pi}{8}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 3, 24.

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19) $\int l\frac{1+x^2}{1-x}\frac{dx}{1+x^2}=\frac{3\pi}{8}l2$ (VIII, 465).

20) $\int l\frac{1+x^2}{1-x^2}\frac{dx}{1+x^2}=\frac{\pi}{4}l2$ (VIII, 465).

21) $\int l\frac{(1+x)(1-x^2)}{1+x^2}\frac{dx}{1+x^2}=-\frac{\pi}{8}l2$ (VIII, 465).

22) $\int l\frac{1-x^2\,Cothp^2\lambda}{1+x^2\,Cothp^2\lambda}\frac{dx}{1-(1-x^2)\,Coshp^2\lambda}=\frac{2\lambda\,l\,Sinhp\lambda}{Sinhp\lambda.\,Coshp\lambda}$ V. T. 318, N. 7.

23) $\int l\frac{1+2x\,Cos\lambda+x^2}{(1+x)^2}\frac{dx}{x}=-\frac{1}{2}\lambda^2$ (VIII, 584).

24) $\int l\frac{1+2x\,Cos\lambda+x^2}{(1+x)^2}(x^p+x^{-p})\frac{dx}{x}=\frac{2\pi}{p}Cosec\,p\pi.(Cos\,p\lambda-1)$ (VIII, 584).

25) $\int l\frac{(1-px)(1+px^2)}{(1-px^2)^2}\frac{dx}{1+px^2}=\frac{1}{2\sqrt{p}}Arctg(\sqrt{p}).l(1+p)$ (VIII, 465*).

26) $\int l\frac{(1-p^2x^2)(1+px^2)}{(1-px^2)^2}\frac{dx}{1+px^2}=\frac{1}{\sqrt{p}}Arctg(\sqrt{p}).l(1+p)$ (VIII, 465*).

27) $\int l\frac{(p-x)(p+x^2)}{(p-x^2)^2}\frac{dx}{p+x^2}=\frac{1}{2\sqrt{p}}Arccot(\sqrt{p}).l\frac{1+p}{p}$ V. T. 115, N. 25.

28) $\int l\frac{(p^2-x^2)(p+x^2)}{(p-x^2)^2}\frac{dx}{p+x^2}=\frac{1}{\sqrt{p}}Arccot(\sqrt{p}).l(1+p)$ V. T. 115, N. 26.

29) $\int l\frac{1+p\sqrt{1-x^2}}{1-p\sqrt{1-x^2}}\frac{dx}{1-x^2}=\pi\,Arcsin p$ V. T. 315, N. 12.

30) $\int l\frac{1+Cos\mu.\sqrt{1-x^2}}{1-Cos\mu.\sqrt{1-x^2}}\frac{dx}{x^2+Tg^2\lambda}=\pi\,Cot\,\lambda.\,l\left[\left\{Cos\frac{1}{2}(\lambda-\mu)\right\}.\left\{Cosec\frac{1}{2}(\lambda+\mu)\right\}\right]$

V. T. 318, N. 13.

31) $\int l\left\{\frac{x+\sqrt{1-x^2}}{x-\sqrt{1-x^2}}\right\}^2\frac{x\,dx}{1-x^2}=\frac{1}{2}\pi^2$ V. T. 315, N. 15.

32) $\int l\frac{\sqrt{1-p^2x^2}-x\sqrt{1-p^2}}{1-x}\frac{dx}{x}=\frac{1}{2}(Arcsin p)^2$ Winckler, Sitz. Ber. Wien. B. 43, 315.

33) $\int\sqrt{l\frac{1}{x}}\frac{dx}{1+x^2}=\frac{1}{2}\sqrt{\pi}.\sum_0^\infty\frac{(-1)^n}{\sqrt{2n+1}^3}$ (IV, 259*).

F. Alg. rat. fract.;
Log. en num. à deux facteurs.

TABLE 116.

Lim. 0 et 1.

1) $\int (lx)^{2a} . l(1+x) \frac{dx}{x} = \frac{2^{2a+1}-1}{(2a+1)(2a+2)} \pi^{2a+2} B_{2a+1}$ (VIII, 592).

2) $\int (lx)^{2a} . l(1-x) \frac{dx}{x} = -\frac{2^{2a}}{(a+1)(2a+1)} \pi^{2a+2} B_{2a+1}$ (VIII, 592).

3) $\int (lx)^{a-1} . l(1+x) \frac{dx}{x} = 1^{a-1/1} \sum_0^\infty \frac{(-1)^{n+a-1}}{(1+n)^{a+1}}$ V. T. 110, N. 3.

4) $\int (lx)^{a-1} . l(1-x) \frac{dx}{x} = (-1)^a 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^{a+1}}$ V. T. 110, N. 6.

5) $\int (lx)^{2a} . l(1-x^2) \frac{dx}{x} = -\frac{1}{(2a+1)(2a+2)} \pi^{2a+2} B_{2a+1}$ V. T. 116, N. 1, 2.

6) $\int (lx)^{a-1} . l(1-x^2) \frac{dx}{x} = \frac{(-1)^a}{2^a} 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^{a+1}}$ V. T. 110, N. 3, 6.

7) $\int (lx)^p . l(1-qx^r) \frac{dx}{x} = \Gamma(p+1) \left(\frac{-1}{r}\right)^{p+1} \sum_1^\infty \frac{q^n}{n^{q+2}}$ V. T. 110, N. 8.

8) $\int (lx)^r . l(1-2px \, Cos\lambda + p^2 x^2) \frac{dx}{x} = (-1)^r 2\Gamma(r) \sum_1^\infty \frac{p^n \, Cos n\lambda}{n^{r+1}}$ V. T. 113, N. 11.

F. Alg. irrat. ent.;
Log. en num.

TABLE 117.

Lim. 0 et 1.

1) $\int lx . dx \sqrt{1-x^2} = -\frac{1}{4}\pi\left(\frac{1}{2}+l2\right)$ (VIII, 685).

2) $\int lx . x dx \sqrt{1-x^2} = \frac{1}{3}\left(l2-\frac{4}{3}\right)$ (VIII, 685).

3) $\int lx . dx \sqrt{1-x^2}^{\,2a-1} = -\frac{1^{a/2}}{2^{a+2} 1^{a/1}} \pi \left\{A + Z'(a+1) + 2l2\right\}$ (IV, 227).

4) $\int lx . x^{2a} dx \sqrt{1-x^2} = -\frac{3^{a-1/2}}{2^{a+1/1}} \frac{\pi}{2} \left\{\frac{1}{2a+2} + l2 + \sum_1^{2a} \frac{(-1)^n}{n}\right\}$ (VIII, 685).

5) $\int lx . x^{2a-1} dx \sqrt{1-x^2} = -\frac{2^{a-1/2}}{1^{a+1/2}} \left\{\frac{1}{2a+1} - l2 + \sum_1^{2a-1} \frac{(-1)^{n-1}}{n}\right\}$ (VIII, 685).

6) $\int l(1+px^2) . dx \sqrt{1-x^2} = \frac{1}{2}\pi \left\{l\frac{1+\sqrt{1+p}}{2} + \frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

7) $\int l(1+p-px^2) . dx \sqrt{1-x^2} = \frac{1}{2}\pi \left\{l\frac{1+\sqrt{1+p}}{2} - \frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ V. T. 309, N. 15.

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8) $\int l(1-p^2x^2).x\,dx\sqrt{1-p^2x^2} = \frac{1}{9p^2}\left[\{2-3l(1-p^2)\}\sqrt{1-p^2}^{\,3}-2\right]$ V. T. 324, N. 19.

9) $\int l(1-p^2x^2).dx\sqrt{(1-x^2)(1-p^2x^2)} = \frac{1}{9p^2}\left[\left\{(2+7p^2-3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}\right.$
$\left.\mathrm{F}'(p)+\{2(1+4p^2)+3(2-p^2)\,l(1-p^2)\}\,\mathrm{E}'(p)\right]$ V. T. 324, N. 21.

Dans 8) et 9) on a $p^2<1$.

F. Alg. irrat. fract.; Log. en num. $(lx)^a$. — TABLE 118. — Lim. 0 et 1.

1) $\int lx\,\frac{x^a}{1-x}\,\frac{dx}{\sqrt{x}} = -\frac{1}{2}\pi^2+4\sum_1^a\frac{1}{(2n-1)^2}$

2) $\int lx\,\frac{1-x^{a+1}}{(1-x)^2}\,\frac{dx}{\sqrt{x}} = -\frac{1}{2}(a+1)\pi^2+4\sum_1^a\frac{a-n+1}{(2n-1)^2}$

Oettinger, Gr. 39, 425.

3) $\int lx\,\frac{dx}{\sqrt{1-x^2}} = -\frac{1}{2}\pi\,l2$ (VIII, 547).

4) $\int lx\,\frac{x\,dx}{\sqrt{1-x^2}} = l2-1$ (VIII, 685).

5) $\int lx\,.\,x^{2a}\,\frac{dx}{\sqrt{1-x^2}} = -\frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left\{l2+\sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 684).

6) $\int lx.x^{2a-1}\,\frac{dx}{\sqrt{1-x^2}} = \frac{2^{a-1/2}}{1^{a/2}}\left\{l2+\sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 684).

7) $\int lx\,\frac{dx}{\sqrt[3]{1-x^3}} = -\frac{\pi}{3\sqrt{3}}\left(l3+\frac{\pi}{3\sqrt{3}}\right)$ (IV, 228).

8) $\int lx\,\frac{x\,dx}{\sqrt[3]{1-x^3}^{\,2}} = \frac{\pi}{3\sqrt{3}}\left(\frac{\pi}{3\sqrt{3}}-l3\right)$ (IV, 228).

9) $\int lx\,\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\frac{1}{2}\,lp\,.\,\mathrm{F}'(p)-\frac{1}{4}\pi\,\mathrm{F}'\{\sqrt{1-p^2}\}\,[p^2<1]$ V. T. 322, N. 3.

10) $\int lx\,\frac{1}{(1-p)^2-4px^2}\,\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2(1-p^2)}\,l\frac{1+p}{2}\,[p^2<1],\ = \frac{\pi}{2(p^2-1)}\,l\frac{1+p}{2p}\,[p^2>1]$

V. T. 321, N. 3.

11) $\int lx\,\frac{1-p^2+2px^2}{(1-p)^2+4px^2}\,\frac{dx}{\sqrt{1-x^2}} = \frac{1}{4}\pi\,l\frac{1-p}{4}\,[p^2<1],\ = \frac{1}{4}\pi\,l\frac{p-1}{4p}\,[p^2>1]$

V. T. 321, N. 1, 2.

12) $\int lx\,\frac{x^{a-1}\,dx}{\sqrt[b]{1-x^b}^{\,b-c}} = -\sum_0^\infty\frac{(b-c)^{n/b}}{b^{n/b}}\,\frac{1}{(a+bn)^2}$ (IV, 228).

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13) $\int (lx)^2 \frac{dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi \left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ (IV, 229).

14) $\int (lx)^h \frac{x^{q-1}\,dx}{\sqrt[b]{1-x^b}^{\,b-c}} = (-1)^h 1^{h/1} \sum_0^\infty \frac{(b-c)^{n/b}}{b^{n/b}} \frac{1}{(q+bn)^{h+1}}$ (IV, 229).

15) $\int (lx)^2 \frac{x^a}{1-x} \frac{dx}{\sqrt{x}} = 16 \sum_a^\infty \frac{1}{(2n-1)^3}$ Oettinger, Gr. 39, 425.

F. Alg. irrat. fract.; Log. en num. $l(1-p^2x^2)\,[p^2<1]$. TABLE 119. Lim. 0 et 1.

1) $\int l(1-p^2x^2)\frac{dx}{\sqrt{1-x^2}} = \pi\, l\frac{1+\sqrt{1-p^2}}{2}\ [p^2<1], = -\pi\, l2p\ [p^2>1]$ (VIII, 550*).

2) $\int l(1-p^2x^2)\frac{x^2\,dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi\left\{l\frac{1+\sqrt{1-p^2}}{2} - \frac{1}{2}\,\frac{1-\sqrt{1-p^2}}{1+\sqrt{1-p^2}}\right\}$ V. T. 309, N. 15.

3) $\int l(1-p^2x^2).dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = (2-p^2)\mathrm{F}'(p) - \left\{2-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)$ (VIII, 549).

4) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-p^2x^2}{1-x^2}} = \frac{1}{9p^2}\Big[\left\{-(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}$

$\mathrm{F}'(p) + \left\{2(1-5p^2)-\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\Big]$ V. T. 324, N. 20.

5) $\int l(1-p^2x^2).dx\sqrt{\frac{(1-p^2x^2)^3}{1-x^2}} = \frac{1}{9}\Big[\left\{2(10-10p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}$

$\mathrm{F}'(p) - (2-p^2)\{10-3l(1-p^2)\}\mathrm{E}'(p)\Big]$ V. T. 324, N. 22.

6) $\int l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2}[\{2-l(1-p^2)\}\sqrt{1-p^2}-2]$ V. T. 323, N. 2.

7) $\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{1}{p^2}\Big[\left\{(2-p^2)-\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p) -$

$-\left\{2-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\Big]$ (VIII, 549).

8) $\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-x^2}{1-p^2x^2}} = \frac{1}{9p^4}\Big[\left\{(16-16p^2+3p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}$

$\mathrm{F}'(p) + \left\{2(1-5p^2)-\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\Big]$ V. T. 323, N. 4.

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$$9)\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{1}{p^2}\left[\left\{(2-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)-\left\{2+\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$$

V. T. 323, N. 16.

$$10)\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{1-p^2x^2}}=\frac{1}{9p^4}\left[-\left\{2(8-17p^2+6p^4)+\frac{3}{2}(1+3p^2)(1-p^2)l(1-p^2)\right\}\right.$$
$$\left.F'(p)+\left\{-2(1+4p^2)+\frac{3}{2}(1+p^2)l(1-p^2)\right\}E'(p)\right]$$ V. T. 323, N. 7.

$$11)\int l(1-p^2x^2).x^2\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{1}{p^4}l(1-p^2).\left[\frac{1}{2}(2-p^2)F'(p)-E'(p)\right]$$ V. T. 323, N. 11.

$$12)\int l(1-p^2x^2).x^4\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{1}{9p^6}\left[\left\{-(16-16p^2+3p^4)+\frac{3}{2}(8-5p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)+\left\{8(2-p^2)-\frac{3}{2}(8-p^2)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 323, N. 14.

$$13)\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^3}}=\frac{1}{p^4}\left[\{p^2(2-p^2)-(1-p^2)\,l(1-p^2)\}\,F'(p)+\right.$$
$$\left.+\left\{-2p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 323, N. 17.

$$14)\int l(1-p^2x^2).x^2dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^3}}=\frac{1}{9p^6}\left[\left\{(16-16p^2+3p^4)-\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\right\}\right.$$
$$\left.F'(p)+4(2-p^2)\{-2+3\,l(1-p^2)\}\,E'(p)\right]$$ V. T. 323, N. 12.

$$15)\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^5}{(1-p^2x^2)^3}}=\frac{1}{9p^6}\left[\left\{-(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)\right.\right.$$
$$\left.\left.l(1-p^2)\right\}F'(p)+\left\{2(8-4p^2-9p^4)-\frac{3}{2}(8-3p^2)(1-p^2)\,l(1-p^2)\right\}E'(p)\right]$$

V. T. 323, N. 18.

$$16)\int l(1-p^2x^2).dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}}=\frac{1}{9p^2(1-p^2)}\left[\left\{(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)-\left\{2(1-5p^2)+\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 324, N. 12.

$$17)\int l(1-p^2x^2).x^2dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}}=\frac{1}{9p^4(1-p^2)}\left[\{-(16-16p^2+3p^4)+3(1-p^2)l(1-p^2)\}\right.$$
$$\left.F'(p)+(2-p^2)\left\{8+\frac{3}{2}\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 324, N. 3.

$$18)\int l(1-p^2x^2).dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}}=\frac{1}{9p^4}\left[\left\{2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}F'(p)-\right.$$
$$\left.-\{2(8+5p^2)+3(1+p^2)\,l(1-p^2)\}E'(p)\right]$$ V. T. 324, N. 13.

$$19)\int l(1-p^2x^2).x^4dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}}=\frac{1}{9p^6(1-p^2)}\left[-\left\{(16-16p^2+3p^4)+\frac{3}{2}(8-3p^2)\right.\right.$$
$$\left.\left.(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{8(2-p^2)+\frac{3}{2}(8-7p^2)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 324, N. 7.

$$20)\int l(1-p^2x^2).x^2dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}}=\frac{1}{9p^6}\left[\left\{(16-16p^2+3p^4)+\frac{3}{2}(8-p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)-4(2-p^2)\{2-3\,l(1-p^2)\}E'(p)\right]$$ V. T. 324, N. 4.

$$21)\int l(1-p^2x^2).dx\sqrt{\left(\frac{1-x^2}{1-p^2x^2}\right)^5}=\frac{1}{9p^6}\left[-\left\{(16-32p^2+p^4+6p^6)+\frac{3}{2}(8-3p^2-p^4)\right.\right.$$
$$\left.\left.l(1-p^2)\right\}F'(p)+\{2(8-12p^2-5p^4)-3(8-5p^2-p^4)\,l(1-p^2)\}E'(p)\right]$$
V. T. 324, N. 14.

$$22)\int l(1-p^2x^2).x^6dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}}=\frac{1}{9p^8(1-p^2)}\left[\{-p^2(16-16p^2+3p^4)+12(2+p^2)\right.$$
$$\left.(1-p^2)\,l(1-p^2)\}F'(p)+\left\{8p^2(2-p^2)+\frac{3}{2}(16-16p^2+p^4)\,l(1-p^2)\right\}E'(p)\right]$$
V. T. 324, N. 10.

$$23)\int l(1-p^2x^2).x^4dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^5}}=\frac{1}{3p^8}\,l(1-p^2).\left[-\frac{1}{2}(16+16p^2-3p^4)F'(p)-\right.$$
$$\left.-4(2-p^2)E'(p)\right]$$ V. T. 324, N. 8.

$$24)\int l(1-p^2x^2).x^2dx\sqrt{\left(\frac{1-x^2}{1-p^2x^2}\right)^5}=\frac{1}{9p^8}[\{p^2(16-16p^2+3p^4)+6(4+6p^2-p^6)\,l(1-p^2)\}$$
$$F'(p)-4(2-p^2)\{2p^2-3(1+p^2)\,l(1-p^2)\}E'(p)]$$ V. T. 324, N. 5.

$$25)\int l(1-p^2x^2).dx\sqrt{\frac{(1-p^2)^7}{(1-p^2x^2)^5}}=\frac{1}{9p^8}\left[\left\{-2p^2(16-8p^2+2p^4+3p^6)-\frac{3}{2}(16-p^4)(1+p^2)\right.\right.$$
$$\left.\left.l(1-p^2)\right\}F'(p)+\{2p^2(16-14p^2-5p^4)-3(8+4p^2-9p^4-p^6)\,l(1-p^2)\}E'(p)\right]$$
V. T. 324, N. 15.

26) $\int l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^{\,2a+1}}=\frac{1}{(2a-1)^2p^2}\left[\{2+(2a-1)\,l(1-p^2)\}\sqrt{1-p^2}^{\,1-2a}-2\right]$ V. T. 324, N. 17.

27) $\int l(1-p^2x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}\,l(1-p^2).\mathrm{F}'(p)$ V. T. 323, N. 1.

28) $\int l(1-p^2x^2)\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{p^2}\left[\left\{p^2-2+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)+\left\{2-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$ (VIII, 549).

29) $\int l(1-p^2x^2)\frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{9p^4}\left[\left\{-2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}\right.$ $\left.\mathrm{F}'(p)+\{2(8+5p^2)-3(1+p^2)\,l(1-p^2)\}\,\mathrm{E}'(p)\right]$ V. T. 323, N. 5.

30) $\int l(1-p^2x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{1-p^2}\left[(p^2-2)\,\mathrm{F}'(p)+\left\{2+\frac{1}{2}\,l(1-p^2)\right\}\mathrm{E}'(p)\right]$ V. T. 323, N. 9.

31) $\int l(1-p^2x^2)\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{p^2(1-p^2)}\left[-\left\{(2-p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}\right.$ $\left.\mathrm{F}'(p)+\left\{2+\frac{1}{2}\,l(1-p^2)\right\}\mathrm{E}'(p)\right]$ V. T. 323, N. 10.

32) $\int l(1-p^2x^2)\frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{p^4(1-p^2)}\left[-\{p^2(2-p^2)+(1-p^2)\,l(1-p^2)\}\right.$ $\left.\mathrm{F}'(p)+\left\{2p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\right]$ V. T. 323, N. 13.

33) $\int l(1-p^2x^2)\frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{9p^6(1-p^2)}\left[\left\{(16-32p^2+p^4+6p^6)-\frac{3}{2}(8+p^2)\right.\right.$ $\left.\left.(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+\left\{-2(8-12p^2-5p^4)+\frac{3}{2}(8-3p^2-2p^4)\,l(1-p^2)\right\}\mathrm{E}'(p)\right]$ V. T. 323, N. 15.

34) $\int l(1-p^2x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}}=\frac{1}{9(1-p^2)^2}\left[-\left\{2(10-10p^2+3p^4)+\frac{3}{2}(1-p^2)\right.\right.$ $\left.\left.l(1-p^2)\right\}\mathrm{F}'(p)+(2-p^2)\{10+3\,l(1-p^2)\}\,\mathrm{E}'(p)\right]$ V. T. 324, N. 1.

35) $\int l(1-p^2x^2)\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}}=\frac{1}{9p^2(1-p^2)^2}\left[-\left\{(2+7p^2-8p^4)+\frac{3}{2}(1-p^2)\right.\right.$ $\left.\left.l(1-p^2)\right\}\mathrm{F}'(p)+\left\{2(1+4p^2)+\frac{3}{2}(1+p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\right]$ V. T. 324, N. 2.

36) $\int l(1-p^2x^2)\frac{x^4\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}}=\frac{1}{9p^4(1-p^2)^2}\left[\left\{2(8-17p^2+6p^4)+\frac{3}{2}(2-3p^2)\right.\right.$ $\left.\left.(1-p^2)l(1-p^2)\right\}F'(p)-\{2(8-13p^2)+3(1-2p^2)l(1-p^2)\}E'(p)\right]$ V. T. 324, N. 6.

37) $\int l(1-p^2x^2)\frac{x^6\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}}=\frac{1}{9p^6(1-p^2)^2}\left[\left\{(16-16p^2-15p^4+9p^6)+\right.\right.$ $\left.+\frac{3}{2}(8-9p^2)(1-p^2)l(1-p^2)\right\}F'(p)-\left\{2(8-4p^2-9p^4)+\frac{3}{2}(8-13p^2+3p^4)\right.$ $\left.\left.l(1-p^2)\right\}E'(p)\right]$ V. T. 324, N. 9.

38) $\int l(1-p^2x^2)\frac{x^8\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}}=\frac{1}{9p^8(1-p^2)^2}\left[\left\{2p^2(16-24p^2+2p^4+3p^6)-\right.\right.$ $\left.-\frac{3}{2}(16-16p^2+p^4)(1-p^2)l(1-p^2)\right\}F'(p)-\{2p^2(16-16p^2-5p^4)+$ $\left.+3(8-12p^2+2p^4+p^6)l(1-p^2)\}F'(p)\right]$ V. T. 324, N. 11.

1) $\int l(1+x)\frac{dx}{\sqrt{1-x^2}}=-\frac{1}{2}\pi l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 7.

2) $\int l(1+px)\frac{dx}{x\sqrt{1-x^2}}=\frac{1}{8}\{\pi^2-4(Arccos p)^2\}$ V. T. 313, N. 8.

3) $\int l(1-x)\frac{dx}{\sqrt{1-x^2}}=-\frac{1}{2}\pi l2+2\sum_0^\infty\frac{(-1)^{n+1}}{(2n+1)^2}$ V. T. 231, N. 8.

4) $\int l(1-px)\frac{dx}{x\sqrt{1-x^2}}=\frac{1}{8}\pi^2-\frac{1}{2}(Arccos p)^2$ V. T. 313, N. 1.

5) $\int l(1+x^2)\frac{1+2x^4}{x^2}\frac{dx}{\sqrt{1-x^4}}=2\sqrt{2}.\left\{F'\left(Sin\frac{\pi}{4}\right)-E'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 8, N. 27.

6) $\int l(1+px^2)\frac{dx}{\sqrt{1-x^2}}=\pi l\frac{1+\sqrt{1+p}}{2}$ (VIII, 357).

7) $\int l(1+px^2)\frac{x^2\,dx}{\sqrt{1-x^2}}=\frac{1}{2}\pi\left\{l\frac{1+\sqrt{1+p}}{2}-\frac{1}{2}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

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8) $\int l(1+px^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{2+2p}{\sqrt{p}}.\mathrm{F}'(p)-\frac{1}{8}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$ V. T. 325, N. 4.

9) $\int l(1+x^2\,Cot^2\lambda)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi\mathrm{F}\{\sqrt{1-p^2},\lambda\}-2\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}-$

$-2\mathrm{F}'(p).l\,Sin\,\lambda-\frac{1}{2}\pi\mathrm{F}'\{\sqrt{1-p^2}\}-\mathrm{F}'(p).lp-\{\mathrm{E}'(p)-\mathrm{F}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$

V. T. 325, N. 7.

10) $\int l(1-x^2)\frac{dx}{\sqrt{1-x^2}}=-\pi l2$ (VIII, 547).

11) $\int l(1-x^2)\frac{dx}{x\sqrt{1-x^2}}=-\frac{1}{4}\pi^2$ V. T. 120, N. 2.

12) $\int l(1-x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{1-p^2}{p^2}.\mathrm{F}'(p)-\frac{1}{2}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$ V. T. 322, N. 9.

13) $\int l(1-p^2x^2\,Sin^2\lambda)\frac{dx}{\sqrt{(1-x^2)(1-p^2x)}}=\mathrm{E}'(p).\{\mathrm{F}(p,\lambda)\}^2-2\mathrm{F}'(p).\Upsilon(p,\lambda)$ V. T. 325, N. 9.

14) $\int l(1-px^2)\frac{dx}{\sqrt{(1-p^2)(1-p^2x)}}=\frac{1}{2}l\frac{2-2p}{\sqrt{p}}.\mathrm{F}'(p)-\frac{1}{8}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$ V. T. 325, N. 5.

15) $\int l(p^2-x^2)^2\frac{dx}{\sqrt{1-x^2}}=-2\pi l2\,[p^2<1],=2\pi l\frac{p+\sqrt{p^2-1}}{2}\,[p^2>1]$ (VIII, 550*).

16) $\int l(1-p^2x^4)\frac{dx}{\sqrt{1-x^2}}=\pi l\frac{1+\sqrt{1-p}+\sqrt{1+p}+\sqrt{1-p^2}}{4}$ V. T. 120, N. 6.

17) $\int l(1-p^2x^4)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{4(1-p^2)}{p^2}.\mathrm{F}'(p)-\frac{1}{4}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$ V. T. 325, N. 10.

F. Alg. irrat. fract.; Log. en num. d' autre fonct. ent. $[p^2<1]$. TABLE 121. Lim. 0 et 1.

1) $\int l(1+p^2+2px)\frac{dx}{\sqrt{1-x^2}}=\sum_0^\infty\frac{1}{2n+1}\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}$ V. T. 308, N. 23.

2) $\int l(1-x^2+p^2x^2)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(1-p^2).\mathrm{F}'(p)+\frac{1}{2}\mathrm{F}'\{\sqrt{1-p^2}\}.$

$l\left[\frac{2\sqrt[4]{1-p^2}}{p^2}\{1-\sqrt{1-p^2}\}\right]$ Bronwin, Math. 2, 297.

3) $\int l(1+p-px^2)\frac{x^2\,dx}{\sqrt{1-x^2}}=\frac{1}{2}\pi\left\{l\frac{1+\sqrt{1+p}}{2}+\frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ V. T. 309, N. 14.

4) $\int l\{1-(Cos^2\lambda+p^2 Sin^2\lambda)x^2\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$

$-2\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p).l\frac{1-p^2}{p^2}-\frac{1}{2}\pi\mathrm{F}'\{\sqrt{1-p^2}\}-$

$-\{\mathrm{E}'(p)-\mathrm{F}'(p)\}[\Upsilon\{\sqrt{1-p^2},\lambda\}]^2$ V. T. 325, N. 8.

5) $\int l\{1-x^2+x^2\sqrt{1-p^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}l\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}.\mathrm{F}'(p)$ V. T. 325, N. 6.

6) $\int l\{1+\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}lp.\mathrm{F}'(p)+\frac{\pi}{4}\mathrm{F}'\{\sqrt{1-p^2}\}$ V. T. 325, N. 3.

7) $\int l\{1-\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}lp.\mathrm{F}'(p)-\frac{3}{4}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$

8) $\int l\{\sqrt{1+px}+\sqrt{1-px}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(4p).\mathrm{F}'(p)+\frac{1}{8}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$

9) $\int l\{\sqrt{1-px}-\sqrt{1-px}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{4}l(4p).\mathrm{F}'(p)+\frac{3}{8}\pi\mathrm{F}'\{\sqrt{1-p^2}\}$

10) $\int l\{1+p^2-2p^2x^2+2p\sqrt{(1-x^2)(1-p^2x^2)}\}\frac{dx}{\sqrt{1-p^2x^2}}=\frac{1}{p}\left\{Arcsin\,p-\frac{1}{2}\pi\,l(1-p^2)\right\}$

11) $\int l\{1+p^2-2p^2x^2-2p\sqrt{(1-x^2)(1-p^2x^2)}\}\frac{dx}{\sqrt{1-p^2x^2}}=\frac{1}{p}\left\{Arcsin\,p+\frac{1}{2}\pi\,l(1-p^2)\right\}$

Sur 7) à 11) voyez Bronwin, Math. 2, 297.

F. Alg. irrat. fract.; Log. en num. de fonct. fract. TABLE 122. Lim. 0 et 1.

1) $\int l\left(\frac{1+x}{1-x}\right)\frac{dx}{\sqrt{1-x^2}}=\frac{1}{2}\pi^2$ (VIII, 546).

2) $\int l\left(\frac{1+qx}{1-qx}\right)\frac{dx}{x\sqrt{1-x^2}}=\pi\,Arcsin\,q$ (VIII, 550*).

3) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{1}{1+x\,Cos\,\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin\,\lambda}l\frac{Cos\{\frac{1}{4}(\pi-2\lambda)\}}{Cos\{\frac{1}{2}(\lambda-\mu)\}}$ V. T. 318, N. 8.

4) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{1}{1-x^2Cos^2\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{\pi}{Sin\,\lambda}l\frac{1+Sin\,\lambda}{Sin\,\lambda+Sin\,\mu}$ V. T. 318, N. 12.

5) $\int l\left(\frac{1+x\,Cos\,\mu}{1-x\,Cos\,\mu}\right)\frac{x}{1-x^2Cos^2\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin\,2\lambda}l\frac{Cos\{\frac{1}{2}(\mu-\lambda)\}}{Sin\{\frac{1}{2}(\mu+\lambda)\}}$ V. T. 318, N. 5.

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6) $\int l\left(\frac{1+x\,Coshp\,\lambda}{1-x\,Coshp\,\lambda}\right)\frac{x}{1-x^2\,Coshp^2\,\lambda}\frac{dx}{\sqrt{1-x^2}}=-\frac{\pi}{Sinhp\,\lambda\,.\,Coshp\,\lambda}\,l\,Sinhp\,\lambda$ V. T. 318, N. 11.

7) $\int l\left(\frac{1+x\,Coshp\,\mu}{1-x\,Coshp\,\mu}\right)\frac{x}{1-x^2\,Cos^2\,\lambda}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{Sin\,2\lambda}\,l\left[Cot\,hp\left\{\frac{1}{2}\,Arccoshp\left(\frac{Coshp\,\mu}{Cos\,\lambda}\right)\right\}.\,Tanghp\left\{\frac{1}{2}\,Arccoshp\left(\frac{Tg\,\lambda}{Tanghp\,\mu}\right)\right\}\right]$ V. T. 318, N. 14.

8) $\int l\left(\frac{1+px}{1-px}\right)\frac{x}{1-qx^2}\frac{dx}{\sqrt{1-x^2}}=\frac{\pi}{\sqrt{q(1-q)}}\,l\,\frac{p\sqrt{q}+\{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q}-\{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ (IV, 232).

9) $\int l\left(\frac{1+x}{1-x}\right)\frac{x}{1-Cos^2\lambda.Cos^2\mu-x^2\,Sin^2\mu}\frac{dx}{\sqrt{x^2-Cos^2\lambda}}=\frac{\pi}{Sin\,\lambda.Sin\,\mu}\,l\,\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda.Cos^2\mu}}{Sin\,\mu\,.(1+Sin\,\lambda)}$ V. T. 322, N. 12.

10) $\int\left\{l\left(\frac{1+x}{1-x}\right)-2x\right\}\frac{dx}{x^3\sqrt{1-x^2}}=\frac{1}{4}\pi^2$ V. T. 315, N. 8.

11) $\int l\left(\frac{Cos^2\lambda+x^2\,Sin^2\lambda}{Cos^2\mu+x^2\,Sin^2\mu}\right)\frac{dx}{\sqrt{1-x^2}}=2\pi\,l\left(Cos\,\frac{1}{2}\lambda\,.\,Sec\,\frac{1}{2}\mu\right)$ (VIII, 291).

12) $\int l\left(\frac{1+qx^2}{1-qx^2}\right)\frac{dx}{\sqrt{1-x^2}}=\pi\,l\,\frac{1+\sqrt{1+q}}{1+\sqrt{1-q}}$ V. T. 120, N. 6.

13) $\int l\left(\frac{1-x\,Coshp\,\lambda.Coshp\,\mu\,.\sqrt{1-x^2\,Cothp^2\,\lambda\,.\,Tghp^2\,\mu}}{1+x\,Coshp\,\lambda.Coshp\,\mu\,.\sqrt{1-x^2\,Cothp^2\,\lambda\,.\,Tghp^2\,\mu}}\right)\frac{dx}{\sqrt{1-x^2}}=$

$=\pi\,l\,\frac{4\,Sinhp\,\lambda}{\left\{Sinhp\,\lambda+\sqrt{1-Coshp^2\,\lambda\,.\,Coshp^2\,\mu}\right\}(1+Sinhp\,\lambda)}$ V. T. 325, N. 2.

14) $\int l\left(\frac{1+\sqrt{(1-x^2)(Sin^2\lambda-x^2\,Sin^2\mu)}}{1-\sqrt{(1-x^2)(Sin^2\lambda-x^2\,Sin^2\mu)}}\right)\frac{dx}{\sqrt{1-x^2}}=\pi\,l\left[\frac{1}{2}\left\{Cos^2\frac{1}{2}\lambda+\sqrt{Cos^4\tfrac{1}{2}\lambda+Sin^2\tfrac{1}{2}\mu.Cos^2\tfrac{1}{2}\mu}\right\}\right]$ V. T. 325, N. 1.

15) $\int l\left(\frac{1+q\sqrt{1-p^2x^2}}{1-q\sqrt{1-p^2x^2}}\right)\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},\,Arcsin\,q\right\}$ V. T. 325, N. 11.

F. Alg. rat. ent.; Log. en dén. lx. TABLE 123. Lim. 0 et 1.

1) $\int x^a\frac{dx}{lx}=\infty$ (IV, 233).

2) $\int(1-x)^p\,\frac{dx}{lx}=\sum_1^\infty(-1)^n\frac{p^{n|-1}}{1^{n|1}}\,l\,(1+n)\;[p\geqq 1]$ (VIII, 278).

3) $\int (x^p - x^q)\frac{dx}{lx} = l\frac{p+1}{q+1}$ (VIII, 346). 4) $\int (x^q - 1)x^{p-1}\frac{dx}{lx} = l\frac{p+q}{p}$ (VIII, 347).

5) $\int (x^p - x^q)x^{r-1}\frac{dx}{lx} = l\frac{p+r}{p+q}$ (IV, 233).

6) $\int (x^p - 1)(x^q - 1)\frac{dx}{lx} = l\frac{p+q+1}{(p+1)(q+1)}$ (VIII, 347).

7) $\int (x^p - x^q)(x^r - x^s)\frac{dx}{lx} = l\frac{(p+r+1)(q+s+1)}{(p+s+1)(q+r+1)}$ (IV, 233).

8) $\int (x^p - 1)(x^q - 1)x^{r-1}\frac{dx}{lx} = l\frac{(p+q+r)r}{(p+r)(q+r)}$ (VIII, 347).

9) $\int (x^p - 1)(x^q - 1)(x^r - 1)\frac{dx}{lx} = l\frac{(p+q+r+1)(p+1)(q+1)(r+1)}{(p+q+1)(p+r+1)(q+r+1)}$ (VIII, 347).

10) $\int (x^p - 1)(x^q - 1)(x^r - 1)x^{s-1}\frac{dx}{lx} = l\frac{(p+q+r+s)(p+s)(q+s)(r+s)}{(p+q+s)(p+r+s)(q+r+s)s}$ (VIII, 347).

11) $\int (x^p - 1)^a\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n} l\{(a-n)p+1\}$ (VIII, 347).

12) $\int (x^p - 1)^a x^{q-1}\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n} l\{q+(a-n)p\}$ (VIII, 347).

13) $\int (x^p - 1)^a (x^q - 1)x^{r-1}\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n} l\frac{r+q+(a-n)p}{r+(a-n)p}$ (VIII, 347).

14) $\int (x^p - 1)^a (x^q - 1)(x^r - 1)\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n} l\frac{\{q+r+(a-n)p+1\}\{(a-n)p+1\}}{\{q+(a-n)p+1\}\{r+(a-n)p+1\}}$ (VIII, 348).

15) $\int (x^p - 1)^a (x^q - 1)^b\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n}\sum_0^b (-1)^m\binom{b}{m} l\{(b-m)q+(a-n)p+1\}$ (VIII, 348).

16) $\int (x^p - 1)^a (x^q - 1)^b x^{r-1}\frac{dx}{lx} = \sum_0^a (-1)^n\binom{a}{n}\sum_0^b (-1)^m\binom{b}{m} l\{r+(b-m)q+(a-n)p\}$ (VIII, 348).

17) $\int (x^{p-1} - x^{q-1})(1+rx)^a\frac{dx}{lx} = l\frac{p}{q} + \sum_1^\infty \binom{a}{n} r^n l\frac{p+n}{q+n}$ (VIII, 491).

18) $\int (x^{p-1} - x^{q-1})\,l(1+rx)\frac{dx}{lx} = l\frac{p}{q} + \sum_1^\infty \frac{r^n}{n} l\frac{p+n}{q+n}$ (VIII, 491).

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1) $\int (x^p-1)^2 \frac{dx}{(lx)^2} = (2p+1)\,l(2p+1) - 2(p+1)\,l(p+1)$ (IV, 234).

2) $\int (x^p-1)(x^q-1) \frac{dx}{(lx)^2} = (p+q+1)\,l(p+q+1) - (q+1)\,l(q+1) - (p+1)\,l(p+1)$ (VIII, 348).

3) $\int (x^p-1)^2 x^{q-1} \frac{dx}{(lx)^2} = (2p+q)\,l(2p+q) - 2(p+q)\,l(p+q) + q\,lq$ (IV, 234).

4) $\int (1-x^p)(1-x^q)(1-x^r) \frac{dx}{(lx)^2} = (p+q+1)\,l(p+q+1) + (p+r+1)\,l(p+r+1) + (q+r+1)\,l(q+r+1) - (p+1)\,l(p+1) - (q+1)\,l(q+1) - (r+1)\,l(r+1) - (p+q+r)\,l(p+q+r)$ (IV, 234).

5) $\int (1-x^p)^a \frac{dx}{(lx)^2} = \sum_1^a (-1)^n \binom{a}{n} (np+1)\,l(np+1)$ (VIII, 348).

6) $\int (1-x^p)^a x^{q-1} \frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} (q+np)\,l(q+np)$ (VIII, 348).

7) $\int (x^p-1)^a (x^q-1)^b \frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} \{(b-m)q+(a-n)p+1\}\, l\{(b-m)q+(a-n)p+1\}$ (VIII, 348).

8) $\int (x^p-1)^a (x^q-1)^b x^{r-1} \frac{dx}{(lx)^2} = \sum_0^a (-1)^n \binom{a}{n} \sum_0^b (-1)^m \binom{b}{m} \{(b-m)q+(a-n)p+r\}\, l\{(b-m)q+(a-n)p+r\}$ (VIII, 348).

9) $\int \{(q-r)x^{p-1} + (r-p)x^{q-1} + (p-q)x^{r-1}\} \frac{dx}{(lx)^2} = (q-r)p\,lp + (r-p)q\,lq + (p-q)r\,lr$ (VIII, 362).

10) $\int \left\{1 - \left(\frac{1}{2} - \frac{1}{lx}\right)(1-x)\right\} x^{q-1} \frac{dx}{lx} = 1 + \left(q+\frac{1}{2}\right) l\frac{q}{q+1}$ V. T. 89, N. 23.

11) $\int \left\{1 - x + \frac{x}{lx}\right\} \frac{dx}{lx} = l2 - 1$ V. T. 89, N. 25.

12) $\int \left\{(p-q) + \frac{1}{lx}(x^{q-1} - x^{p-1})\right\} \frac{dx}{lx} = p - q + q\,lq - p\,lp$ V. T. 89, N. 21.

13) $\int (1-x^p)^a \frac{dx}{(lx)^3} = \frac{1}{2} \sum_1^a (-1)^n \binom{a}{n} (pn+1)^2\, l(pn+1)$ (IV, 234).

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14) $\int (1-x^p)^a x^{q-1} \frac{dx}{(lx)^3} = \frac{1}{2} \sum_0^a (-1)^n \binom{a}{n} (pn+q)^2 l(pn+q)$ (IV, 235).

15) $\int (1-x^p)^a (1-x^q) \frac{dx}{(lx)^3} = -\frac{1}{2} \sum_0^a (-1)^n \binom{a}{n} (q+pn+1)^2 l(q+pn+1) + \frac{1}{2} \sum_1^a (-1)^n \binom{a}{n}$
$(pn+1)^2 l(pn+1)$ (IV, 235).

16) $\int \left\{ \frac{x^{p-1}}{(p-q)(p-r)(p-s)} + \frac{x^{q-1}}{(q-p)(q-r)(q-s)} + \frac{x^{r-1}}{(r-p)(r-q)(r-s)} + \frac{x^{s-1}}{(s-p)(s-q)(s-r)} \right\} \frac{dx}{(lx)^3} =$
$= \frac{1}{2} \left\{ \frac{p^2 lp}{(p-q)(p-r)(p-s)} + \frac{q^2 lq}{(q-p)(q-r)(q-s)} + \frac{r^2 lr}{(r-p)(r-q)(r-s)} + \frac{s^2 ls}{(s-p)(s-q)(s-r)} \right\}$
(IV, 234).

17) $\int x^{p-1} \frac{dx}{(lx)^q} = (-1)^q p^{q-1} \Gamma(1-q) \; [q<1]$ (VIII, 439).

18) $\int x^{pq-1} dx \left(\frac{x^q-1}{lx} \right)^a = \frac{1}{1^{a-1/1}} \Delta^a . [(pq)^{a-1} l(pq)]$ (IV, 235).

19) $\int x^{pr-1} (x^r-1)^a \frac{dx}{(lx)^{b+1}} = \frac{r^b}{1^{b/1}} \Delta^a . [p^b lp]$ (IV, 235).

20) $\int (x^{q-1} - x^{r-1}) \frac{dx}{(lx)^{p+1}} = (-1)^{p+1} \Gamma(1-p) \frac{1}{p} (q^p - r^p) \; [p<1]$ V. T. 90, N. 6.

21) $\int (x-1)^a x^{b-1} \frac{dx}{(lx)^{q+1}} = \frac{(-1)^q \pi}{Sin\, q\pi . \Gamma(q+1)} \Delta^a . b^q \; [q<a], = \frac{-1}{\Gamma(q+1)} \Delta^a . b^q \, lb \; [q \text{ entier}]$
V. T. 90, N. 8.

F. Alg. rat. ent.; Log. en dén. binôme. TABLE 125. Lim. 0 et 1.

1) $\int x^{p-1} \frac{dx}{q+lx} = e^{-pq} Ei(pq)$ V. T. 91, N. 4.

2) $\int x^{p-1} \frac{dx}{q-lx} = -e^{pq} Ei(-pq)$ V. T. 91, N. 1.

3) $\int x^{p-1} \frac{dx}{q^2+(lx)^2} = \frac{1}{q} \left\{ Ci(pq) . Sin\, pq - Si(pq) . Cos\, pq + \frac{1}{2} \pi \, Cos\, pq \right\}$ V. T. 91, N. 7.

4) $\int x^{p-1} lx \frac{dx}{q^2+(lx)^2} = Ci(pq) . Cos\, pq + Si(pq) . Sin\, pq - \frac{1}{2} \pi \, Sin\, pq$ V. T. 91, N. 8.

5) $\int x^{p-1} \frac{dx}{q^2-(lx)^2} = \frac{1}{2q} \left\{ e^{-pq} Ei(pq) - e^{pq} Ei(-pq) \right\}$ V. T. 91, N. 14.

6) $\int x^{p-1}\, lx \frac{dx}{q^2-(lx)^2} = -\frac{1}{2}\left\{e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\right\}$ V. T. 91, N. 15.

7) $\int x^{p-1} \frac{dx}{q^4-(lx)^4} = \frac{1}{4q^3}\left\{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) + 2\, Ci(pq).Sin\, pq - 2\, Si(pq).Cos\, pq + \right.$
$\left. + \pi\, Cos\, pq\right\}$ V. T. 91, N. 18.

8) $\int x^{p-1}\, lx \frac{dx}{q^4-(lx)^4} = \frac{1}{4q^2}\left\{-e^{pq} Ei(-pq) - e^{-pq} Ei(pq) + 2\, Ci(pq).Cos\, pq + 2\, Si(pq).Sin\, pq - \right.$
$\left. - \pi\, Sin\, pq\right\}$ V. T. 91, N. 19.

9) $\int x^{p-1} (lx)^2 \frac{dx}{q^4-(lx)^4} = \frac{1}{4q}\left\{e^{-pq} Ei(pq) - e^{pq} Ei(-pq) - 2\, Ci(pq).Sin\, pq + 2\, Si(pq).Cos\, pq - \right.$
$\left. - \pi\, Cos\, pq\right\}$ V. T. 91, N. 20.

10) $\int x^{p-1} (lx)^3 \frac{dx}{q^4-(lx)^4} = \frac{1}{q}\left\{-e^{-pq} Ei(pq) - e^{pq} Ei(-pq) - 2\, Ci(pq).Cos\, pq - 2\, Si(pq).Sin\, pq + \right.$
$\left. + \pi\, Sin\, pq\right\}$ V. T. 91, N. 21.

11) $\int x^{p-1} \frac{dx}{(q+lx)^2} = -\frac{1}{q}\left\{1 - pq e^{-pq} Ei(pq)\right\}$ V. T. 92, N. 1.

12) $\int x^{p-1}\, lx \frac{dx}{(q+lx)^2} = 1 + (1-pq) e^{-pq} Ei(pq)$ V. T. 125, N. 1, 11.

13) $\int x^{p-1} \frac{dx}{(q-lx)^2} = \frac{1}{q}\left\{1 + pq e^{pq} Ei(-pq)\right\}$ V. T. 92, N. 4.

14) $\int x^{p-1}\, lx \frac{dx}{(q-lx)^2} = 1 + (pq+1) e^{pq} Ei(-pq)$ V. T. 125, N. 2, 13.

15) $\int x^{p-1} \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q^3}\left\{Ci(pq).Sin\, pq - Si(pq).Cos\, pq + \frac{1}{2}\pi\, Cos\, pq\right\} +$
$+ \frac{p}{2q^2}\left\{Ci(pq).Cos\, pq + Si(pq).Sin\, pq - \frac{1}{2}\pi\, Sin\, pq\right\}$ V. T. 92, N. 6.

16) $\int x^{p-1}\, lx \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{p}{2q}\left\{Ci(pq).Sin\, pq - Si(pq).Cos\, pq + \frac{1}{2}\pi\, Cos\, pq\right\} - \frac{1}{2q^2}$ V. T. 92, N. 7.

17) $\int x^{p-1} (lx)^2 \frac{dx}{\{q^2+(lx)^2\}^2} = \frac{1}{2q}\left\{Ci(pq).Sin\, pq - Si(pq).Cos\, pq + \frac{1}{2}\pi\, Cos\, pq\right\} -$
$- \frac{1}{2}p\left\{Ci(pq).Cos\, pq + Si(pq).Sin\, pq - \frac{1}{2}\pi\, Sin\, pq\right\}$ V. T. 125, N. 3, 15.

18) $\int x^{p-1} \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}\left\{(pq-1) e^{pq} Ei(-pq) + (1+pq) e^{-pq} Ei(pq)\right\}$ V. T. 92, N. 8.

F. Alg. rat. ent.; Log. en dén. binôme.	TABLE 125, suite.	Lim. 0 et 1.

19) $\int x^{p-1}\, lx \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^2}\left\{pq\{e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq)\} - 1\right\}$ V. T. 92, N. 9.

20) $\int x^{p-1}(lx)^2 \frac{dx}{\{q^2-(lx)^2\}^2} = \frac{1}{4q^3}\{(pq+1)e^{pq}\, Ei(-pq) + (pq-1)e^{-pq}\, Ei(pq)\}$ V. T. 125, N. 5, 18.

21) $\int x^{p-1} \frac{dx}{(q+lx)^a} = \frac{p^{a-1}}{1^{a-1/1}} e^{-pq}\, Ei(pq) - \frac{1}{1^{a-1/1}\, q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1}(pq)^{n-1}$ V. T. 92, N. 5.

22) $\int x^{p-1} \frac{dx}{(q-lx)^a} = (-1)^a \frac{p^{a-1}}{1^{a-1/1}} e^{pq}\, Ei(-pq) + \frac{1}{1^{a-1/1}\, q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1}(-pq)^{n-1}$ V. T. 92, N. 2.

F. Alg. rat. fract. à dén. monôme; Log. en dén. monôme.	TABLE 126.	Lim. 0 et 1.

1) $\int \left\{1 - \frac{1}{lx} + \frac{1}{x\, lx}\right\} \frac{dx}{lx} = 1$ V. T. 89, N. 20.

2) $\int \left\{\frac{x^q-1}{x(lx)^2} - \frac{q}{lx}\right\} dx = q\, lq - q$ (IV, 237).

3) $\int \left\{\frac{x^q-1}{x(lx)^3} - \frac{q}{x(lx)^2} - \frac{q^2}{2\, lx}\right\} dx = \frac{1}{2} q^2\, lq - \frac{3}{4} q^2$ (IV, 237).

4) $\int \left\{\frac{x^q-1}{x(lx)^4} - \frac{q}{x(lx)^3} - \frac{q^2}{2x(lx)^2} - \frac{q^3}{6\, lx}\right\} dx = \frac{1}{6} q^3\, lq - \frac{11}{36} q^3$ (IV, 237).

5) $\int \left\{x - \left(\frac{1}{1-lx}\right)^q\right\} \frac{dx}{x\, lx} = -Z'(q)$ V. T. 80, N. 7.

6) $\int \left\{x^p - \frac{1}{1+q^2(lx)^2}\right\} \frac{dx}{x\, lx} = A + l\frac{p}{q}$ V. T. 92, N. 11.

7) $\int \left\{x - \frac{1}{1-lx}\right\} \frac{dx}{x\, lx} = A$ V. T. 92, N. 10.

8) $\int \left\{x^q - \frac{1}{1-p\, lx}\right\} \frac{dx}{x\, lx} = l\frac{q}{p} + A$ V. T. 92, N. 10.

9) $\int \left\{x - \frac{1}{(1-lx)^p}\right\} \frac{dx}{x\, lx} = -Z'(p)$ V. T. 92, N. 15.

10) $\int \left\{\frac{x-1}{lx} - \frac{1}{1-lx}\right\} \frac{dx}{x\, lx} = A - 1$ V. T. 92, N. 16.

11) $\int \frac{l(1-x^q)}{1+(lx)^2} \frac{dx}{x} = \pi\left\{l\Gamma\left(\frac{q}{2\pi}+1\right) - \frac{1}{2} lq + \frac{q}{2\pi}\left(l\frac{q}{2\pi} - 1\right)\right\}$ V. T. 354, N. 6.

12) $\int \frac{x\, lx + 1 - x}{x(lx)^2}\, l(1+x)\, dx = l\frac{4}{\pi}$ V. T. 127, N. 3.

1) $\int \frac{1}{1+x} \frac{dx}{lx} = -\infty =$ 2) $\int \frac{1}{1-x} \frac{dx}{lx}$ (VIII, 264).

3) $\int \frac{1-x}{1+x} \frac{dx}{lx} = l\frac{2}{\pi}$ (IV, 238). 4) $\int \frac{1-x^{p-1}}{1+x} \frac{dx}{lx} = l\Gamma\left(\frac{q}{2}\right) - l\Gamma\left(\frac{q+1}{2}\right) - \frac{1}{2} l\pi$ (IV, 238).

5) $\int \frac{x^{p-1}-x^{q-1}}{1+x} \frac{dx}{lx} = l \frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{p}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ (IV, 238).

6) $\int \frac{1-x^p}{1+x} \frac{x^q\,dx}{lx} = l \frac{\Gamma(\frac{1}{2}q+1)\Gamma\left(\frac{p+q+1}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}$ (IV, 238).

7) $\int \frac{x^{p-1}-x^{q-1}}{1+x} \frac{1+x^{2a+1}}{lx} dx = l \frac{\left(\frac{p}{2}\right)^{a+1/1}\left(\frac{q+1}{2}\right)^{a/1}}{\left(\frac{p+1}{2}\right)^{a/1}\left(\frac{q}{2}\right)^{a+1/1}}$ (IV, 238).

8) $\int \frac{1-x^p}{1-x} \frac{1-x^q}{lx} dx = l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ (VIII, 349).

9) $\int \frac{1-x^p}{1-x} \frac{1-x^q}{lx} x^{r-1}\,dx = l \frac{\Gamma(p+r)\Gamma(q+r)}{\Gamma(p+q+r)\Gamma(r)}$ (VIII, 349).

10) $\int \frac{(1-x^p)(1-x^q)}{1-x} \frac{1-x^r}{lx} dx = l \frac{\Gamma(p+1)\Gamma(q+1)\Gamma(r+1)\Gamma(p+q+r+1)}{\Gamma(p+q+1)\Gamma(p+r+1)\Gamma(q+r+1)}$ (VIII, 349).

11) $\int \frac{(1-x^p)(1-x^q)}{1-x} \frac{1-x^r}{lx} x^{s-1}\,dx = l \frac{\Gamma(p+s)\Gamma(q+s)\Gamma(r+s)\Gamma(p+q+r+s)}{\Gamma(p+q+s)\Gamma(p+r+s)\Gamma(q+r+s)\Gamma(s)}$ (IV, 239).

12) $\int \frac{(1-x^p)^a}{1-x} \frac{dx}{lx} = \sum_0^a (-1)^{n-1} l\Gamma\left\{(a-n)p+1\right\}$ (VIII, 349).

13) $\int \frac{(1-x^p)^a}{1-x} \frac{x^{q-1}\,dx}{lx} = \sum_0^a (-1)^{n-1} l\Gamma\left\{(a-n)p+q\right\}$ (VIII, 349).

14) $\int \left\{\frac{1}{1+x} - \frac{1}{2}x\right\} \frac{dx}{lx} = -\frac{1}{2} l\pi$ V. T. 94, N. 3. 15) $\int \left\{\frac{1}{lx} + \frac{1}{1-x}\right\} dx = \mathrm{A}$ (IV, 238).

16) $\int \left\{\frac{1}{lx} + \frac{x^{q-1}}{1-x}\right\} dx = -\mathrm{Z}'(q)$ (VIII, 552).

17) $\int \left\{\frac{x^{p-1}}{lx} + \frac{x^{q-1}}{1-x}\right\} dx = lp - \mathrm{Z}'(q)$ V. T. 123, N. 3 et T. 127, N. 16.

18) $\int\left\{\frac{1-x^{q-1}}{1-x}+1-q\right\}\frac{dx}{lx}=l\Gamma(q)$ (VIII, 552).

19) $\int\left\{\frac{x^p-x^{p+q}}{1-x}-q\right\}\frac{dx}{lx}=l\frac{\Gamma(p+q+1)}{\Gamma(p+1)}$ (IV, 239).

20) $\int\left\{\frac{1}{lx}+\frac{1}{1-x}-\frac{1}{2}\right\}\frac{dx}{lx}=\frac{1}{2}l2\pi-1=$ 21) $\int\left\{\frac{1}{lx}+\frac{1}{2}\,\frac{1+x}{1-x}\right\}\frac{dx}{lx}$ V. T. 94, N. 29, 30.

22) $\int\left\{\frac{1}{lx}+\frac{1}{2}\,\frac{1+x}{1-x}-lx\right\}\frac{dx}{lx}=\frac{1}{2}l2\pi=$ 23) $\int\left\{\frac{1}{lx}+\frac{1}{2}x+\frac{x}{1-x}\right\}\frac{dx}{x\,lx}$ V. T. 94, N. 31, 32.

24) $\int\left\{p+\frac{x^{p-1}}{lx}-\frac{1}{2}x^{p-1}-\frac{1}{1-x}\right\}\frac{dx}{lx}=-\left(p+\frac{1}{2}\right)lp+p-\frac{1}{2}l2\pi$ V. T. 94, N. 28.

25) $\int\left\{p-1-\frac{1}{1-x}+\left(\frac{1}{2}-\frac{1}{lx}\right)x^{p-1}\right\}\frac{dx}{lx}=\left(\frac{1}{2}-p\right)lp+p-\frac{1}{2}l2\pi$ V. T. 94, N. 26.

F. Alg. rat. fract. à autre dén. bin.; Log. en dén. monôme. TABLE 128. Lim. 0 et 1.

1) $\int\frac{x}{1-x^2}\,\frac{dx}{lx}=-\infty$ (VIII, 264).

2) $\int\frac{(1-x)^2}{1+x^2}\,\frac{dx}{lx}=l\frac{\pi}{4}$ V. T. 130, N. 7.

3) $\int\frac{1-x^2}{1+x^4}\,\frac{dx}{lx}=l\,Cot\,\frac{3\pi}{8}$ (IV, 240).

4) $\int\frac{x^{p-1}-x^{q-1}}{1+x^2}\,\frac{dx}{lx}=l\frac{\Gamma\left(\frac{p+2}{4}\right)\Gamma\left(\frac{q}{4}\right)}{\Gamma\left(\frac{p}{4}\right)\Gamma\left(\frac{q+2}{4}\right)}$ Lindmann, Gr. 35, 475.

5) $\int\frac{x^{p+q-1}-x^{p-q-1}}{1+x^{2p}}\,\frac{dx}{lx}=l\,Tg\left(\frac{p+q}{4p}\pi\right)$ (VIII, 350).

6) $\int\frac{1-x^{2p-2q}}{1+x^{2p}}\,\frac{x^{q-1}\,dx}{lx}=l\,Tg\,\frac{q\pi}{4p}$ (IV, 240).

7) $\int\frac{x^{p-1}-x^{q-1}}{1+x^{2(2a+1)}}\,\frac{1+x^2}{lx}\,dx=l\frac{\Gamma\left\{\frac{p+4a+4}{4(2a+1)}\right\}\Gamma\left\{\frac{q+2}{4(2a+1)}\right\}\Gamma\left\{\frac{p+4a+2}{4(2a+1)}\right\}\Gamma\left\{\frac{q}{4(2a+1)}\right\}}{\Gamma\left\{\frac{q+4a+4}{4(2a+1)}\right\}\Gamma\left\{\frac{p+2}{4(2a+1)}\right\}\Gamma\left\{\frac{q+4a+2}{4(2a+1)}\right\}\Gamma\left\{\frac{p}{4(2a+1)}\right\}}$

Lindmann, Gr. 35, 475.

8) $\int\frac{x^{p+q-1}+x^{p-q-1}-2x^{p-1}}{1-x^{2p}}\,\frac{dx}{lx}=l\,Cos\,\frac{q\pi}{2p}$ (VIII, 350).

9) $\int \frac{(1-x^{p-q})^2}{1-x^{2p}} \frac{x^{q-1}\,dx}{lx} = l\,Sin\frac{q\pi}{2p}$ (IV, 240).

10) $\int \frac{(1-x^q)^2}{1-x^p} \frac{x^{p-q-1}\,dx}{lx} = l\left(\frac{p}{q\pi} Sin\frac{q\pi}{p}\right)$ $[p>q]$ (IV, 240).

11) $\int \frac{x^{p-1}-x^{q-1}}{1-x^{2a}} \frac{1-x^2}{lx}\,dx = l.\frac{\Gamma\left(\frac{p+2}{2a}\right)\Gamma\left(\frac{q}{2a}\right)}{\Gamma\left(\frac{p}{2a}\right)\Gamma\left(\frac{q+2}{2a}\right)}$ Lindmann, Gr. 35, 475.

12) $\int \frac{1-x^p}{1-x^2} \frac{1-x^{p+1}}{lx}\,dx = -pl2$ $[p>-1]$ (VIII, 349).

13) $\int \left\{\frac{2-x}{2\,lx} + \frac{1}{1-x^2} - \frac{1-x}{2}\right\} \frac{dx}{lx} = 0$ V. T. 94, N. 22.

14) $\int \left\{\frac{1}{1-x^2} + \frac{1}{2\,lx} - \frac{1}{2}\right\} \frac{dx}{lx} = \frac{1}{2}(l2-1)$ V. T. 94, N. 25.

15) $\int \left\{q - \frac{1}{2} + \frac{(1-x)(1+q\,lx)+x\,lx}{(1-x)^2} x^{q-1}\right\} \frac{dx}{lx} = \frac{1}{2} - q - l\Gamma(q) + \frac{1}{2} l2\pi$ (IV, 242).

F. Alg. rat. fract. à dén. binôme; Log. en dén. binôme. TABLE 129. Lim. 0 et 1.

1) $\int \frac{lx}{4\pi^2+(lx)^2} \frac{dx}{1-x} = \frac{1}{4} - \frac{1}{2}A$ V. T. 97, N. 14.

2) $\int \frac{lx}{q^2+(lx)^2} \frac{dx}{1-x} = \frac{1}{2}\left\{\frac{\pi}{q} + l\frac{2\pi}{q} + Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 97, N. 20.

3) $\int \frac{lx}{q^2-(lx)^2} \frac{dx}{1-x} = \frac{\pi^2}{q^2} \sum_0^\infty \frac{(-1)^{n-1}}{n+1} B_{2n+1} \left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 21.

4) $\int \frac{lx}{\{q^2+(lx)^2\}^2} \frac{dx}{1-x} = -\frac{\pi^2}{q^4} \sum_0^\infty B_{2n+1} \left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 22.

5) $\int \frac{lx}{\{q^2-(lx)^2\}^2} \frac{dx}{1-x} = \frac{\pi^2}{q^4} \sum_0^\infty (-1)^{n+1} B_{2n+1} \left(\frac{2\pi}{q}\right)^{2n}$ V. T. 97, N. 23.

6) $\int \frac{1}{\pi^2+(lx)^2} \frac{dx}{1+x^2} = \frac{4-\pi}{4\pi}$ V. T. 97, N. 1.

7) $\int \frac{1}{\pi^2+4(lx)^2} \frac{dx}{1+x^2} = \frac{1}{4\pi} l2$ V. T. 97, N. 2.

8) $\int \frac{1}{\pi^2+16(lx)^2}\,\frac{dx}{1+x^2} = \frac{1}{8\pi\sqrt{2}}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

9) $\int \frac{1}{q^2+(lx)^2}\,\frac{dx}{1+x^2} = \frac{1}{4q}\left\{Z'\left(\frac{2q+3\pi}{4\pi}\right) - Z'\left(\frac{2q+\pi}{4\pi}\right)\right\}$ V. T. 97, N. 4.

10) $\int \frac{lx}{\pi^2+(lx)^2}\,\frac{dx}{1-x^2} = \frac{1}{2}\left(\frac{1}{2} - l2\right)$ V. T. 97, N. 7.

11) $\int \frac{lx}{\pi^2+4(lx)^2}\,\frac{dx}{1-x^2} = \frac{2-\pi}{16}$ V. T. 97, N. 8.

12) $\int \frac{lx}{\pi^2+16(lx)^2}\,\frac{dx}{1-x^2} = -\frac{\pi}{32\sqrt{2}} + \frac{1}{16} + \frac{1}{32\sqrt{2}}\,l\frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

13) $\int \frac{lx}{\pi^2+(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{1}{4} - \frac{1}{2}\mathrm{A}$ V. T. 97, N. 14.

14) $\int \frac{lx}{q^2+(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{1}{2}\left\{\frac{\pi}{2q} + l\frac{\pi}{q} + Z'\left(\frac{q}{\pi}\right)\right\}$ V. T. 97, N. 20.

15) $\int \frac{lx}{q^2-(lx)^2}\,\frac{x\,dx}{1-x^2} = \frac{\pi^2}{4q^2}\sum_0^\infty \frac{(-1)^{n-1}}{n+1}\,\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 21.

16) $\int \frac{lx}{\{q^2+(lx)^2\}^2}\,\frac{x\,dx}{1-x^2} = -\frac{\pi^2}{4q^4}\sum_0^\infty \mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 22.

17) $\int \frac{lx}{\{q^2-(lx)^2\}^2}\,\frac{x\,dx}{1-x^2} = \frac{\pi^2}{4q^4}\sum_0^\infty (-1)^{n-1}\,\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 97, N. 23.

F. Alg. rat. fract. à dén. trin. et composé; Log. en dén. monôme. TABLE 130. Lim. 0 et 1.

1) $\int \frac{1}{1+x^2+2x\,Cos\,\lambda}\,\frac{dx}{(lx)^{1-q}} = Cosec\,\lambda\,.\,\Gamma(q)\sum_1^\infty (-1)^{n-q}\,n^{-q}\,Sin\,n\lambda$ (VIII, 489).

2) $\int \frac{x^q - x^p}{1+x^2+2x\,Cos\frac{a\pi}{b}}\,\frac{dx}{lx} = Cosec\frac{a\pi}{b}\,.\sum_1^{b-1}(-1)^n\,Sin\frac{na\pi}{b}\,.\,l\frac{\Gamma\left(\frac{p+b+n}{2b}\right)\Gamma\left(\frac{q+n}{2b}\right)}{\Gamma\left(\frac{q+b+n}{2b}\right)\Gamma\left(\frac{p+n}{2b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],=$

$= Cosec\frac{a\pi}{b}\,.\sum_1^{\frac{1}{2}(b-1)}(-1)^n\,Sin\frac{na\pi}{b}\,.\,l\frac{\Gamma\left(\frac{p+b-n}{b}\right)\Gamma\left(\frac{q+n}{b}\right)}{\Gamma\left(\frac{q+b-n}{b}\right)\Gamma\left(\frac{p+n}{b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 242).

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3) $$\int\frac{(1-x)^2}{1+x^2+2x\,Cos\frac{a\pi}{b}}\frac{dx}{lx}=Cosec\frac{a\pi}{b}.\sum_1^{b-1}(-1)^n Sin\frac{na\pi}{b}.l\frac{\left\{\Gamma\left(\frac{b+n+1}{2b}\right)\right\}^2\Gamma\left(\frac{n+2}{2b}\right)\Gamma\left(\frac{n}{2b}\right)}{\left\{\Gamma\left(\frac{n+1}{2b}\right)\right\}^2\Gamma\left(\frac{b+n}{2b}\right)\Gamma\left(\frac{b+n+2}{2b}\right)}\begin{bmatrix}a+b\\ \text{impair}\end{bmatrix},$$

$$=Cosec\frac{a\pi}{b}.\sum_1^{\frac12(b-1)}(-1)^n Sin\frac{na\pi}{b}.l\frac{\left\{\Gamma\left(\frac{b-n+1}{b}\right)\right\}^2\Gamma\left(\frac{n+2}{b}\right)\Gamma\left(\frac{n}{b}\right)}{\left\{\Gamma\left(\frac{n+1}{b}\right)\right\}^2\Gamma\left(\frac{b-n}{b}\right)\Gamma\left(\frac{b-n+2}{b}\right)}\begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}\ \text{(IV, 243).}$$

4) $$\int\left\{Tg\frac{a\pi}{2b}-\frac{2x^q\,Sin\frac{a\pi}{b}}{1+x^2+2x\,Cos\frac{a\pi}{b}}\right\}\frac{dx}{lx}=-Tg\frac{a\pi}{2b}.l(2b)+2\sum_1^{b-1}(-1)^n Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{q+b+n}{2b}\right)}{\Gamma\left(\frac{q+n}{2b}\right)}\begin{bmatrix}a+b\\ \text{impair}\end{bmatrix},$$

$$=-Tg\frac{a\pi}{2b}.lb+2\sum_1^{\frac12(b-1)}(-1)^n Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{q+b-n}{b}\right)}{\Gamma\left(\frac{q+n}{b}\right)}\begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}\ \text{(IV, 243).}$$

Dans 2) à 4) on a $a<b$.

5) $$\int\frac{1+x}{1+x^2+2x\,Cos\lambda}\frac{dx}{(lx)^{1-q}}=Sec\frac12\lambda.\Gamma(q)\sum_1^\infty(-1)^{n-q}\frac{Cos\left\{(n-\frac12)\lambda\right\}}{n^q}\ \text{(VIII, 489).}$$

6) $$\int\frac{x^q-x^{1-q}}{1+x}\frac{dx}{x\,lx}=l\,Tg\frac12 q\pi\ \text{V. T. 130, N. 9.}$$

7) $$\int\frac{(x^q-x^{-q})^2}{1+x}\frac{dx}{lx}=l(q\pi\,Cot\,q\pi)\ \text{(VIII, 585*).}$$

8) $$\int\frac{x^q-x^{-q}}{1+x^2}\frac{dx}{lx}=l\,Tg\left(\frac{q+1}{4}\pi\right)\ \text{V. T. 95, N. 3.}$$

9) $$\int\frac{x^p-x^{r-p}}{1+x^r}\frac{dx}{x\,lx}=l\,Tg\frac{p\pi}{2r}\ \text{(IV, 244).}$$

10) $$\int\frac{x^p-x^q}{1+x^r}\frac{1+x^{r-p-q}}{x}\frac{dx}{lx}=l\left\{Tg\frac{p\pi}{2r}.Cot\frac{q\pi}{2r}\right\}\ \text{V. T. 130, N. 9.}$$

11) $$\int\frac{x^q+x^{-q}-2}{1-x}\frac{dx}{lx}=l\left(\frac{1}{q\pi}Sin\,q\pi\right)\ \text{(VIII, 585).}$$

12) $$\int\frac{(x^q-x^{-q})^2}{1-x^2}\frac{dx}{lx}=l\,Cos\,q\pi\ \text{V. T. 130, N. 7, 13.}$$

13) $$\int\frac{(x^q-x^{-q})^2}{1-x^2}\frac{x\,dx}{lx}=l\left(\frac{1}{q\pi}Sin\,q\pi\right)\ \text{V. T. 130, N. 11.}$$

14) $\int \frac{(x^q - x^{-q})^2}{x^p - x^{-p}} \frac{dx}{x\,lx} = l\,Sec\,\frac{q\pi}{p}$ (VIII, 350).

15) $\int \frac{x^p - x^q}{(1-rx)^a} \frac{dx}{x\,lx} = l\frac{p}{q} + \sum_1^\infty \frac{a^{n/1}}{1^{n/1}} r^n\, l\frac{p+n}{q+n}$ $[r^2 \leqq 1]$ (VIII, 491).

16) $\int \frac{1-x}{1+x} \frac{1}{1+x^2} \frac{dx}{lx} = -\frac{1}{2} l2$ (VIII, 350).

17) $\int \frac{1-x}{1+x} \frac{x^2}{1+x^2} \frac{dx}{lx} = l\frac{2\sqrt{2}}{\pi}$ V. T. 127, N. 3 et T. 130, N. 16.

18) $\int \left\{(1-x) - \frac{(1-x^p)(1-x^q)}{1-x}\right\} \frac{dx}{x\,lx} = l\frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (IV, 243).

19) $\int \left\{\frac{1}{1-x^2} + \frac{1}{2x\,lx}\right\} dx = -\frac{1}{2} l2$ V. T. 95, N. 11.

20) $\int \left\{\frac{x^{p-1}}{1-x} - \frac{x^{pq-1}}{1-x^q} - \frac{1}{x(1-x)} + \frac{1}{x(1-x^q)}\right\} \frac{dx}{lx} = q\,lp$ V. T. 94, N. 15.

21) $\int \left\{\frac{1}{1-x} - \frac{px^{p-1}}{1-x^p} + \left(pq - \frac{p+1}{2}\right)x^{p-1} + (1-pq)\right\} \frac{dx}{lx} = \frac{1-p}{2} l(2\pi) + \left(pq - \frac{1}{2}\right) lp$

(IV, 244).

22) $\int \left\{\frac{x^{q-1}}{1-x} - \frac{x^{pq-1}}{1-x^p} - \frac{p-1}{1-x^p} x^{p-1} - \frac{1}{2}(p-1)x^{p-1}\right\} \frac{dx}{lx} = \frac{1-p}{2} l(2\pi) + \left(pq - \frac{1}{2}\right) lp$

(IV, 244).

23) $\int \left\{\frac{p}{x^p - x^{-p}} - \frac{q}{x^q - x^{-q}}\right\} \frac{dx}{x\,lx} = \frac{1}{2}(q-p)\,l2$ V. T. 95, N. 12.

24) $\int \left\{\frac{(p+qx^m)x^m}{r+sx^m+tx^{2m}} - \frac{(p+qx^n)x^n}{r+sx^n+tx^{2n}}\right\} \frac{dx}{lx} = \frac{p+q}{r+s+t}\, l\frac{n}{m}$ V. T. 96, N. 7.

F. Alg. rat. fract. à dén. composé; Log. en dén. d'autre forme. TABLE 131. Lim. 0 et 1.

1) $\int \frac{x^q + x^{-q}}{x^r + x^{-r}} \frac{dx}{x(lx)^p} = \Gamma(1-p) \sum_0^\infty (-1)^{p+n} \left[\frac{1}{\{(2n+1)r-q\}^{1-p}} + \frac{1}{\{(2n+1)r+q\}^{1-p}}\right]$

V. T. 95, N. 9.

2) $\int \frac{x^q - x^{-q}}{x^r - x^{-r}} \frac{dx}{x(lx)^p} = (-1)^p \Gamma(1-p) \sum_0^\infty \left[\frac{1}{\{2n+1)r-q\}^{1-p}} - \frac{1}{\{(2n+1)r+q\}^{1-p}}\right]$

V. T. 95, N. 10.

3) $\int \frac{x^p + x^{-p}}{1-x^2} \frac{lx.dx}{\pi^2+(lx)^2} = \frac{1}{2}[1 - p\pi\, Sin\, p\pi - Cos\, p\pi . l\{2(1+Cos\, p\pi)\}]\ [p \leqq 1]$ V. T. 97, N. 12.

4) $\int \frac{x^p - x^{-p}}{1-x^2} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2\pi}[p\pi\, Cos\, p\pi - Sin\, p\pi . l\{2(1+Cos\, p\pi)\}]\ [p \leqq 1]$ V. T. 97, N. 10.

5) $\int \frac{x^p + x^{-p}}{1-x^2} \frac{lx.dx}{\pi^2+4(lx)^2} = \frac{1}{4} - \frac{1}{8}\pi\, Cos\frac{1}{2}p\pi + \frac{1}{8} Sin\frac{1}{2}p\pi . l\frac{1-Sin\frac{1}{2}p\pi}{1+Sin\frac{1}{2}p\pi}\ [p<1]$ V. T. 97, N. 13.

6) $\int \frac{x^p - x^{-p}}{1-x^2} \frac{dx}{\pi^2+4(lx)^2} = \frac{1}{4\pi} Cos\frac{1}{2}p\pi . l\frac{1+Sin\frac{1}{2}p\pi}{1-Sin\frac{1}{2}p\pi} - \frac{1}{4} Sin\frac{1}{2}p\pi\ [p \leqq 1]$ V. T. 97, N. 11.

7) $\int \frac{1}{x^p + x^{-p}} \frac{1}{q^2+(lx)^2} \frac{dx}{x} = \frac{\pi}{q}\sum_1^\infty \frac{(-1)^{n-1}}{2pq+(2n-1)\pi}$ V. T. 97, N. 5.

8) $\int \frac{x^p - x^{-p}}{x^p + x^{-p}} \frac{lx}{q^2+(lx)^2} \frac{dx}{x} = \pi\sum_1^\infty \frac{1}{2pq+(2n-1)\pi}$ V. T. 97, N. 6.

9) $\int \frac{lx}{x^p - x^{-p}} \frac{1}{q^2+(lx)^2} \frac{dx}{x} = \frac{\pi}{4pq} + \frac{\pi}{2}\sum_1^\infty \frac{(-1)^n}{pq+n\pi}$ V. T. 97, N. 16.

10) $\int \frac{x^p + x^{-p}}{x^p - x^{-p}} \frac{lx}{q^2+(lx)^2} \frac{dx}{x} = \frac{\pi}{2pq} + \pi\sum_1^\infty \frac{1}{pq+n\pi}$ V. T. 97, N. 17.

11) $\int \frac{x^{p-r} + x^{r-p}}{x^r - x^{-r}} \frac{lx}{q^2+(lx)^2} \frac{dx}{x} = \frac{\pi}{2qr} + \pi\sum_1^\infty \frac{1}{qr+n\pi} Cos\frac{np\pi}{r}\ [p^2<r^2]$ V. T. 97, N. 19.

12) $\int \frac{x^{p-r} - x^{r-p}}{x^r - x^{-r}} \frac{1}{q^2+(lx)^2} \frac{dx}{x} = -\frac{\pi}{q}\sum_1^\infty \frac{1}{qr+n\pi} Sin\frac{np\pi}{r}\ [p^2<r^2]$ V. T. 97, N. 18.

13) $\int \left\{\left(q-\frac{1}{2}\right)\frac{x^{p-1}-x^{r-1}}{lx} + \frac{px^{pq-1}}{1-x^p} - \frac{rx^{qr-1}}{1-x^r}\right\}\frac{dx}{lx} = (p-r)\left\{\frac{1}{2} - q - l\Gamma(q) + \frac{1}{2}l(2\pi)\right\}$ (IV, 245).

F. Alg. irrat. fract.; Log. en dén. TABLE 132. Lim. 0 et 1.

1) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2\pi} l2$ V. T. 97, N. 2.

2) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{4\pi^2+(lx)^2} = \frac{4-\pi}{8\pi}$ V. T. 97, N. 1.

3) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{\pi^2+4(lx)^2} = \frac{1}{4\pi\sqrt{2}}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

4) $\int \frac{1}{(1+x)\sqrt{x}} \frac{dx}{q^2+(lx)^2} = \frac{1}{4q}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right) - Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 97, N. 4.

5) $\int \frac{lx}{(1-x)\sqrt{x}} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2} - \frac{1}{4}\pi$ V. T. 97, N. 8.

6) $\int \frac{lx}{(1-x)\sqrt{x}} \frac{dx}{\pi^2+4(lx)^2} = -\frac{\pi}{8\sqrt{2}} + \frac{1}{4} + \frac{1}{8\sqrt{2}} l \frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

7) $\int \frac{1}{(1+\sqrt{x})\sqrt[4]{x^3}} \frac{dx}{\pi^2+(lx)^2} = \frac{1}{2\pi\sqrt{2}} \left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 97, N. 3.

8) $\int \frac{lx}{(1-\sqrt{x})\sqrt[4]{x^3}} \frac{dx}{\pi^2-(lx)^2} = -\frac{\pi}{2\sqrt{2}} + 1 + \frac{1}{2\sqrt{2}} l \frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 97, N. 9.

9) $\int \frac{x^p - x^{-p}}{(1-x)\sqrt{x}} \frac{dx}{\pi^2-(lx)^2} = -\frac{1}{2} Sin p\pi + \frac{1}{2\pi} Cos p\pi . l \frac{1+Sin p\pi}{1-Sin p\pi} \left[p<\frac{1}{2}\right]$ V. T. 97, N. 11.

10) $\int \frac{x^p + x^{-p}}{(1-x)\sqrt{x}} \frac{lx.dx}{\pi^2+(lx)^2} = 1 - \frac{1}{2}\pi Cos p\pi + \frac{1}{2} Sin p\pi . l \frac{1-Sin p\pi}{1+Sin p\pi} \left[p<\frac{1}{2}\right]$ V. T. 97, N. 13.

11) $\int \frac{x^p - x^{-p}}{(1-x)\sqrt{x}} \frac{dx}{4\pi^2+(lx)^2} = -\frac{1}{4\pi}[2p\pi Cos 2p\pi + Sin 2p\pi . l\{2(1+Cos 2p\pi)\}]$ V. T. 97, N. 10.

12) $\int \frac{x^p + x^{-p}}{(1-x)\sqrt{x}} \frac{lx.dx}{4\pi^2+(lx)^2} = \frac{1}{2}[-1 + 2p\pi Sin 2p\pi + Cos 2p\pi . l\{2(1+Cos 2p\pi)\}]$
V. T. 97, N. 12.

13) $\int \frac{x^{\frac{1}{2}(p-1)} - x^{\frac{1}{2}(1-p)}}{(1-x)\sqrt{x}} \frac{dx}{q^2+(lx)^2} = \frac{2\pi}{q} \sum_1^\infty \frac{Sin np\pi}{q+n\pi} [p<1]$ V. T. 97, N. 18.

14) $\int \frac{x^{\frac{1}{2}(p-1)} + x^{\frac{1}{2}(1-p)}}{(1-x)\sqrt{x}} \frac{lx.dx}{q^2+(lx)^2} = -\frac{\pi}{q} - 2\pi \sum_1^\infty \frac{Cos np\pi}{q+n\pi}$ V. T. 97, N. 19.

15) $\int \frac{1-x^{q-1}}{1-x} \frac{1-x^{q-\frac{1}{2}}}{\sqrt{x}} \frac{dx}{lx} = -(2q-2) l2$ (IV, 246).

16) $\int \left\{\frac{1}{1-x} + \frac{1}{lx} - \frac{1}{2}\right\} \frac{dx}{lx.\sqrt{x}} = \frac{1}{2}(l2-1)$ V. T. 94, N. 24.

17) $\int \left\{\frac{1}{lx} - \frac{1}{2} - \frac{1}{lx.\sqrt{x}}\right\} \frac{dx}{lx} = \frac{1}{2}(l2-1)$ V. T. 89, N. 19.

18) $\int \left\{\left(\frac{1}{lx} - \frac{1}{2}\right)\sqrt{x} + \left(\frac{1}{2} + \frac{1}{1-x}\right)x\right\} \frac{dx}{x\,lx} = \frac{1}{2} l 2\pi - \frac{1}{2}$ V. T. 94, N. 27.

19) $\int \left\{\frac{1}{2} - \frac{1}{1+\sqrt{x}}\right\} \frac{dx}{lx} = \frac{1}{2} l \frac{4}{\pi}$ V. T. 94, N. 5.

20) $\int \left\{\frac{1}{1-x} - \frac{x}{1-x^2} + \frac{1}{lx.\sqrt{x}} - \frac{1}{2\,lx}\right\} \frac{dx}{lx} = 0$ V. T. 94, N. 23.

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F. Alg. irrat. fract.; Log. en dén.	TABLE 132, suite.	Lim. 0 et 1.

21) $\int \left\{ \frac{b}{lx} + \frac{x^{q-1}}{1-\sqrt[b]{x}} \right\} dx = b\,l\,b - b\,Z'(bq)$ (IV, 247).

22) $\int \left\{ \frac{a-1}{2} + \frac{a-1}{1-x} + \frac{x^{p-1}}{1-\sqrt[a]{\frac{1}{x}}} + \frac{x^{ap}}{1-x} \right\} \frac{dx}{lx} = \left(ap+\frac{1}{2}\right) la - \frac{1}{2}(a-1)\, l\, 2\pi$ V. T. 94, N. 14.

23) $\int \left\{ \left(p-\frac{1}{2}\right) x + \left(\frac{1}{2} - \frac{1}{lx}\right) \left(x^{p-1} - \sqrt{\frac{1}{x}}\right) \right\} \frac{dx}{lx} = \left(\frac{1}{2} - p\right)(lp - 1)$ V. T. 89, N. 22.

24) $\int \left\{ \frac{x^{q-1}}{1-x} - \frac{x^{pq-1} + (p-1)x^{\frac{1}{2}p-1}}{1-x^p} \right\} \frac{dx}{lx} = \frac{1}{2}(1-p)\, l\, 2 + \left(pq - \frac{1}{2}\right) lp$ (IV, 247).

F. Alg. rat.; Log. en dén. sous forme irrat.	TABLE 133.	Lim. 0 et 1.

1) $\int \frac{x^{p-1}}{\sqrt{l\frac{1}{x}}} dx = \sqrt{\frac{\pi}{p}}$ (VIII, 542).

2) $\int \frac{1}{\sqrt{l\frac{1}{x}}} \frac{dx}{1+x^2} = \sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 25.

3) $\int \frac{1}{\sqrt{l\frac{1}{x}}} \frac{dx}{1+x+x^2} = Cosec \frac{1}{3}\pi . \sqrt{\pi} . \sum_1^\infty \frac{(-1)^{n-1}}{\sqrt{n}} Sin \frac{1}{3} n\pi$ V. T. 98, N. 26.

4) $\int \frac{x^{p-1} - x^{q-1}}{\left(l\frac{1}{x}\right)^{2-\frac{1}{a}}} dx = \frac{a\Gamma\left(\frac{1}{a}\right)}{a-1} \left(q^{1-\frac{1}{a}} - p^{1-\frac{1}{a}}\right)$ $[q>p>0]$ V. T. 98, N. 21.

5) $\int \frac{Sin\,\lambda - x^a\, Sin\left\{(a+1)\lambda\right\} + x^{a+1}\, Sin\, a\lambda}{1 - 2x\,Cos\,\lambda + x^2} \frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi} . \sum_1^a \frac{Sin\, n\lambda}{\sqrt{n}}$ (VIII, 476).

6) $\int \frac{Cos\,\lambda - x - x^{a-1}\, Cos\, a\lambda + x^a\, Cos\left\{(a-1)\lambda\right\}}{1 - 2x\,Cos\,\lambda + x^2} \frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi} . \sum_1^{a-1} \frac{Cos\, n\lambda}{\sqrt{n}}$ (VIII, 476).

F. Alg. rat. fract. à dén. mon.; Log. en num. $[p<1]$.	TABLE 134.	Lim. 0 et ∞.

1) $\int l(1+x) \frac{dx}{x^{2-p}} = \frac{\pi}{1-p} Cosec\, p\pi$ V. T. 17, N. 10.

2) $\int l(1+x) \frac{dx}{x^{1+p}} = \frac{\pi}{p} Cosec\, p\pi$ V. T. 18, N. 1.

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3) $\int l(1+qx)\frac{dx}{x^{2-p}}=\frac{\pi}{(1-p)q^{p-1}}\,Cosec\,p\pi$ V. T. 16, N. 1.

4) $\int l(1-x)\frac{dx}{x^{2-p}}=\frac{\pi}{p-1}\,Cot\,p\pi$ V. T. 17, N. 11.

5) $\int l(1+x^3)\frac{dx}{x^2}=\frac{2\pi}{\sqrt{3}}$ V. T. 17, N. 3.

6) $\int l(1+x^3)\frac{dx}{x^3}=\frac{\pi}{3}\sqrt{3}$ V. T. 17, N. 2.

7) $\int l(q^3-x^3)\frac{dx}{x^3}=\frac{\pi}{4q^2}\sqrt{3}$ V. T. 17, N. 4.

8) $\int l(1+x^4)\frac{dx}{x^2}=\pi\sqrt{2}$ V. T. 17, N. 6.

9) $\int l(1+x^4)\frac{dx}{x^4}=\frac{1}{3}\pi\sqrt{2}$ V. T. 17, N. 5.

10) $\int l(1+x^6)\frac{dx}{x^2}=2\pi$ V. T. 17, N. 8.

11) $\int l(1+x^6)\frac{dx}{x^6}=\frac{2}{5}\pi$ V. T. 17, N. 7.

12) $\int l(1+x^q)\frac{dx}{x^{1+r}}=\frac{\pi}{r}\,Cosec\frac{r\pi}{q}$ V. T. 17, N. 10.

13) $\int l(1-x^q)\frac{dx}{x^{1+r}}=-\frac{\pi}{r}\,Cot\frac{r\pi}{q}$ V. T. 17, N. 11.

14) $\int l\left\{\frac{(x+1)(x+q^2)}{(x+q)^2}\right\}\frac{dx}{x}=(lq)^2\ [q>1]$ (IV, 249).

15) $\int l\left\{\frac{(1+x)^2}{1+2x\,Cos\,\lambda+x^2}\right\}\frac{dx}{x}=\lambda^2\ [\lambda<\pi,q>1]$ (VIII, 584).

16) $\int l\left\{\frac{(x+1)(x+q^2)}{(x+q)^2}\right\}\frac{dx}{x^{1-p}}=\frac{\pi}{p}\,Cosec\,p\pi.(q^p-1)^2\ [q>1]$ (IV, 249).

17) $\int l\left\{\frac{(x+1)^2}{1+2x\,Cos\,\lambda+x^2}\right\}\frac{dx}{x^{1-p}}=\frac{2\pi}{p}\,Cosec\,p\pi.(1-Cos\,p\lambda)\ [\lambda<\pi]$ (VIII, 584).

18) $\int lx\,.\,l(1+q^2x^2)\frac{dx}{x^2}=\pi q(1-lq)$ (VIII, 608).

19) $\int\{l(1+p^2x^2)\}^2\frac{dx}{x^2}=4p\pi\,l2$ (VIII, 607).

20) $\int l(1+q^2x^2).l(1+r^2x^2)\frac{dx}{x^2}=2\pi\{(p+q)l(p+q)-p\,lp-q\,lq\}$ (VIII, 607).

21) $\int l\left(p^2+\frac{1}{x^2}\right).l\left(1+\frac{q^2}{x^2}\right)\frac{dx}{x^2}=2\pi\left\{\frac{1+pq}{p}\,l(1+pq)-q\,lq\right\}$ (VIII, 608).

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22) $\int l(1+q^2x^2).l\left(r^2+\frac{1}{x^2}\right)\frac{dx}{x^2}=2\pi\{(q+r)l(q+r)-rlr-q\}$ (VIII, 608).

23) $\int l\left(1+\frac{x^2}{r^2}\right).l\left(1+\frac{q^2}{x^2}\right)\frac{dx}{x^2}=2\pi\frac{q+r}{qr}l\left(\frac{q+r}{r}\right)-\frac{2\pi}{r}$ (VIII, 608*).

24) $\int lx\,.\,l\left(\frac{1+p^2x^2}{1+q^2x^2}\right)\frac{dx}{x^2}=\pi(p-q)+\pi l\frac{q^q}{p^p}$ V. T. 33, N. 1.

25) $\int lx\,.\,l\left(\frac{q^2+2rx+x^2}{q^2-2rx+x^2}\right)\frac{dx}{x}=2\pi lq\,.\,Arcsin\frac{r}{q}\;[q\geqq r]$ (VIII, 559).

26) $\int l(1-x^r).\{(q-r)lx+1\}\frac{dx}{x^{1+r-q}}=-\frac{\pi^2}{r}Cosec^2\frac{q\pi}{r}\;[q<r]$ V. T. 135, N. 8.

F. Alg. rat. fract. à dén. bin.; Log. en num. $(lx)^a$.

TABLE 135.

Lim. 0 et ∞.

1) $\int lx\frac{x^{p-1}dx}{x+q}=\pi q^{p-1}Cosec\,p\pi\,.(lq-\pi\,Cot\,p\pi)\;[p<1]$ (IV, 250).

2) $\int (lx)^{2a+1}\frac{dx}{1+x^2}=0$ (VIII, 285).

3) $\int (lx)^{2a}\frac{dx}{1+x^2}=2\,.\,1^{2a/1}\sum_0^\infty\frac{(-1)^n}{(2n+1)^{2a+1}}$ (VIII, 285).

4) $\int l(px)\frac{dx}{q^2+x^2}=\frac{\pi}{2q}lpq$ (VIII, 456). 5) $\int lx\frac{dx}{p^2+q^2x^2}=\frac{\pi}{2pq}l\frac{p}{q}$ (VIII, 274).

6) $\int lx\frac{dx}{p^2-q^2x^2}=-\frac{q}{4p}\pi^2$ (VIII, 285*).

7) $\int lx\frac{x^{p-1}dx}{1+x^q}=-\left(\frac{\pi}{q}\right)^2Cos\frac{p\pi}{q}.Cosec^2\frac{p\pi}{q}\;[p^2<q^2]$ (VIII, 486).

8) $\int lx\frac{x^{p-1}dx}{1-x^q}=-\left(\frac{\pi}{q}\right)^2Cosec^2\frac{p\pi}{q}$ (VIII, 485).

9) $\int lx\frac{1-x^p}{1-x^2}dx=\frac{1}{4}\pi^2\,Tg^2\frac{1}{2}p\pi$ V. T. 135, N. 8.

10) $\int lx\frac{1-x}{1-x^{2a}}x^{a-2}dx=-\left(\frac{\pi}{2a}Tg\frac{\pi}{2a}\right)^2\;[a>1]$ (IV, 251).

11) $\int lx\frac{1-x^2}{1-x^{2a}}x^{a-3}dx=-\left(\frac{\pi}{2a}Tg\frac{\pi}{a}\right)^2\;[a>2]$ (IV, 251).

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12) $\int lx \frac{1-x^2}{1-x^{2b}} x^{a-1}\, dx = -\left(\frac{\pi}{2b}\right)^2 Cosec^2 \frac{a\pi}{2b} . Cosec\left(\frac{a+2}{2b}\pi\right) . Sin\left(\frac{a+1}{b}\pi\right) . Sin\frac{\pi}{b}$ (IV, 251).

13) $\int (lx)^2 \frac{1+x^2}{1+x^4}\, dx = \frac{3\sqrt{2}}{32}\pi^3$ (VIII, 568).

F. Alg. rat. fract. à dén. bin.; Log. en num. d' autre forme ent. TABLE 136. Lim. 0 et ∞.

1) $\int l(1+x)\frac{dx}{1+x^2} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

2) $\int l(1-x)^2 \frac{dx}{1+x^2} = \frac{\pi}{2} l2 + 2\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 17 et T. 115, N. 5.

3) $\int l(1+x^2)\frac{dx}{1+x^2} = \pi l2$ (VIII, 604*). 4) $\int l(1+x^2)\frac{dx}{1-x^2} = -\frac{1}{4}\pi^2$ (VIII, 278).

5) $\int l(1-x^2)^2 \frac{dx}{1+x^2} = \pi l2$ V. T. 136, N. 1, 2.

6) $\int l(1+x^3)\frac{dx}{1+x^3} = \frac{1}{9}\pi^2 - \frac{\pi}{\sqrt{3}} l3$ V. T. 138, N. 13.

7) $\int l(1+x^3)\frac{x\,dx}{1+x^3} = -\frac{1}{9}\pi^2 - \frac{\pi}{\sqrt{3}} l3$ V. T. 138, N. 12.

8) $\int l(1+x^3)\frac{dx}{1-x+x^2} = -\frac{2\pi}{\sqrt{3}} l3$ V. T. 138, N. 14.

9) $\int l(1+x^3)\frac{1-x}{1+x^3}\, dx = \frac{2}{9}\pi^2$ V. T. 138, N. 15.

10) $\int l(1-x^4)^2 \frac{dx}{1+x^2} = 3\pi l2$ V. T. 136, N. 3, 5.

11) $\int l(1+p^2x^2)\frac{dx}{q^2+x^2} = \frac{\pi}{q} l(1+pq)$ (VIII, 604).

12) $\int l(1+p^2x^2)\frac{dx}{1+q^2x^2} = \frac{\pi}{q} l\frac{p+q}{q}$ (VIII, 604).

13) $\int l(p^2+x^2)\frac{dx}{q^2+x^2} = \frac{\pi}{q} l(p+q)$ (VIII, 604).

14) $\int l(p^2+x^2)\frac{dx}{1+q^2x^2} = \frac{\pi}{q} l\frac{1+pq}{q}$ (VIII, 604).

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F. Alg. rat. fract. à dén. bin.; Log. en num. d'autre forme ent. — TABLE 136, suite. — Lim. 0 et ∞.

15) $\int l(p^2+x^2)\dfrac{dx}{q^2-x^2}=-\dfrac{\pi}{q}\,Arctg\dfrac{q}{p}$ V. T. 135, N. 6 et T. 138, N. 11.

16) $\int l(p^2-x^2)^2\,\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{q}\,l(p^2+q^2)$ V. T. 248, N. 10.

17) $\int l(p^4-x^4)^2\,\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{q}\,l\left\{(p^2+q^2)(p+q)^2\right\}$ V. T. 248, N. 13.

F. Alg. rat. fract. à dén. binôme; Log. en num. de fonct. fract. à dén. x. — TABLE 137. — Lim. 0 et ∞.

1) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a-1}\,dx}{1+x}=\dfrac{1}{2a}\,l2+\dfrac{1}{4a^2}-\dfrac{1}{2a}\sum_0^\infty\dfrac{(-1)^n}{2a+n+1}$ (VIII, 422).

2) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a-1}\,dx}{1-x}=\dfrac{1}{2a}\,l2+\dfrac{1}{4a^2}-\dfrac{1}{2a}\sum_0^\infty\dfrac{(-1)^n}{2a+n+1}$ (VIII, 422).

3) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a}\,dx}{1+x}=\dfrac{1}{4a^2}\left\{2a\,l2+1+2a\sum_0^\infty\dfrac{(-1)^{n-1}}{2a+n+1}\right\}$ (VIII, 422).

4) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a}\,dx}{1-x}=\dfrac{1}{4a^2}\left\{-1-2a\,l2+2a\sum_0^\infty\dfrac{(-1)^n}{2a+n+1}\right\}$ (VIII, 422).

5) $\int l\left(\dfrac{1+x}{x}\right)\dfrac{dx}{1+x^2}=\dfrac{\pi}{4}\,l2+\sum_0^\infty\dfrac{(-1)^n}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 1.

6) $\int l\left\{\dfrac{(1+x)^2}{x}\right\}\dfrac{dx}{1+x^2}=\dfrac{\pi}{2}\,l2+2\sum_0^\infty\dfrac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

7) $\int l\left\{\dfrac{(1-x)^2}{x}\right\}\dfrac{dx}{1+x^2}=\dfrac{\pi}{2}\,l2+2\sum_0^\infty\dfrac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 2.

8) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{dx}{1+x^2}=\pi\,l2$ V. T. 135, N. 2 et T. 136, N. 13.

9) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{dx}{1-x^2}=0$ (VIII, 278).

10) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a-1}\,dx}{1+x^2}=\dfrac{1}{2a}\,l2+\dfrac{1}{4a^2}+\dfrac{1}{2a}\sum_0^\infty\dfrac{(-1)^{n-1}}{2a+n+1}$ (VIII, 422).

11) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a-1}\,dx}{1-x^2}=\dfrac{1}{2a}\,l2+\dfrac{1}{4a^2}+\dfrac{1}{2a}\sum_0^\infty\dfrac{(-1)^{n-1}}{2a+n+1}$ (VIII, 422).

12) $\int l\left(\dfrac{1+x^2}{x}\right)\dfrac{x^{2a-1}\,dx}{1-x^4}=\dfrac{1}{2a}\,l2+\dfrac{1}{4a^2}-\dfrac{1}{2a}\sum_0^\infty\dfrac{(-1)^n}{2a+n+1}$ (VIII, 422).

1) $\int l\left\{\frac{(1-x)^2}{x^2}\right\}\frac{dx}{1+x^2}=\frac{\pi}{2}l2+2\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 135, N. 2 et T. 136, N. 2.

2) $\int l\left(\frac{1+x^2}{x^2}\right)\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 13.

3) $\int l\left(\frac{1+x^2}{x^2}\right)\frac{x\,dx}{1+x^2}=\frac{1}{12}\pi^2$ (VIII, 291).

4) $\int l\left\{\frac{(1-x^2)^2}{x^2}\right\}\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 5.

5) $\int l\left\{\frac{(1-x^4)^2}{x^2}\right\}\frac{dx}{1+x^2}=3\pi l2$ V. T. 135, N. 2 et T. 136, N. 10.

6) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\frac{1+pq}{q}$ (VIII, 604).

7) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{1+q^2x^2}=\frac{\pi}{q}l(p+q)$ (VIII, 604).

8) $\int l\left(\frac{1+p^2x^2}{x^2}\right)\frac{dx}{q^2-x^2}=\frac{\pi}{q}Arccot\,pq$ (VIII, 360).

9) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{1+q^2x^2}=\frac{\pi}{q}l(1+pq)$ (VIII, 604).

10) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}l\frac{p+q}{q}$ (VIII, 604).

11) $\int l\left(\frac{p^2+x^2}{x^2}\right)\frac{dx}{q^2-x^2}=\frac{\pi}{q}Arctg\frac{p}{q}$ (VIII, 360).

12) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{dx}{1+x^3}=\frac{\pi}{\sqrt{3}}l3+\frac{1}{9}\pi^2$ (IV, 258*).

13) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{x\,dx}{1+x^3}=\frac{\pi}{\sqrt{3}}l3-\frac{1}{9}\pi^2$ (IV, 258*).

14) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{dx}{1-x+x^2}=\frac{2\pi}{\sqrt{3}}l3$ V. T. 138, N. 12, 13.

15) $\int l\left(\frac{1+x^3}{x^3}\right)\frac{1-x}{1+x^3}dx=\frac{2}{9}\pi^2$ V. T. 138, N. 12, 13.

16) $\int l\left\{\frac{(1-x^2)^2}{x^4}\right\}\frac{dx}{1+x^2}=\pi l2$ V. T. 135, N. 2 et T. 136, N. 5.

17) $\int l\left\{\frac{(1-x^4)^2}{x^4}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

18) $\int l\left\{\frac{(1-x^4)^2}{x^6}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

19) $\int l\left\{\frac{(1-x^4)^2}{x^8}\right\}\frac{dx}{1+x^2}=3\pi\, l2$ V. T. 135, N. 2 et T. 136, N. 10.

20) $\int l\,(x^p+x^{-p})\frac{dx}{1-x^2}=0$ (VIII, 278).

21) $\int l\left(\frac{1+x}{1-x}\right)^2\frac{dx}{1+x^2}=4\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1, 2.

22) $\int l\frac{1+x^2}{1+x}\frac{dx}{1+x^2}=\frac{3\pi}{4}l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 136, N. 1, 13.

23) $\int l\left(\frac{1+x^2}{1-x}\right)^2\frac{dx}{1+x^2}=\frac{3\pi}{2}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 2, 13.

24) $\int l\left(\frac{1+x^2}{1-x^2}\right)^2\frac{dx}{1+x^2}=\pi\, l2$ V. T. 136, N. 5, 13.

25) $\int l\left(\frac{1+x}{1-x}\right)^2\frac{x\,dx}{1+x^2}=\frac{1}{2}\pi^2$ V. T. 312, N. 15.

26) $\int l\left(\frac{r^2+x^2}{p^2+x^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\frac{1+qr}{1+pq}$ (VIII, 291*).

F. Alg. rat. fract. à dén. puiss. de bin.; Log. en num. TABLE 139. Lim. 0 et ∞.

1) $\int lx\frac{dx}{(q+x)^2}=\frac{1}{q}lq\ [q<1]$ V. T. 139, N. 7.

2) $\int lx\frac{dx}{(q+x)^{p+1}}=\frac{1}{pq^p}\{lq-\mathrm{A}-\mathrm{Z}'(p)\}=\frac{1}{pq^p}\left\{lq-\sum_1^{p-1}\frac{1}{n}\right\}$ [p entier] (IV, 252).

3) $\int lx\frac{dx}{(q^2+r^2x^2)^p}=\frac{\Gamma(p-\frac{1}{2})}{4q^{2p-1}r\Gamma(p)}\sqrt{\pi}.\left\{2l\frac{q}{2r}-\mathrm{A}-\mathrm{Z}'\left(p-\frac{1}{2}\right)\right\}$ (IV, 252).

4) $\int (lx)^2\frac{dx}{(1-x)^2}=\frac{2}{3}\pi^2$ (IV, 252).

5) $\int l(1+x)\frac{dx}{(px+q)^2}=\frac{1}{p(p-q)}l\frac{p}{q}$ (VIII, 591).

6) $\int l(p+x)\frac{dx}{(q-x)^2}=\frac{1}{p+q}l\frac{p}{q}-\frac{1}{q}lp$ V. T. 139, N. 8.

7) $\int l(p-x)^2\frac{dx}{(q+x)^2}=\frac{2}{p+q}\left\{lq+\frac{p}{q}lp\right\}$ V. T. 139, N. 8.

8) $\int l(px+q)\frac{dx}{(1+x)^2}=\frac{1}{p-q}\{plp-qlq\}$ (VIII, 591).

9) $\int l(p+x)\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{2(p^2+q^2)}\left\{lq+\frac{p\pi}{2q}+\frac{p^2}{q^2}lp\right\}$ (VIII, 590).

10) $\int l(p-x)^2\frac{x\,dx}{(q^2+x^2)^2}=\frac{1}{p^2+q^2}\left\{lq-\frac{p\pi}{2q}+\frac{p^2}{q^2}lp\right\}$ (VIII, 591).

11) $\int l(p+x)\frac{q^2-x^2}{(q^2+x^2)^2}dx=\frac{1}{p^2+q^2}\left\{pl\frac{q}{p}-\frac{1}{2}q\pi\right\}$ (IV, 253*).

12) $\int l(p-x)^2\frac{q^2-x^2}{(q^2+x^2)^2}dx=\frac{2}{p^2+q^2}\left\{pl\frac{p}{q}-\frac{1}{2}q\pi\right\}$ (IV, 253*).

13) $\int l(1+x)\frac{1+x^2}{(1+x)^4}dx=\frac{1}{2}$ V. T. 139, N. 14.

14) $\int l(1+x)\frac{1+x^2}{(px+q)^2}\,\frac{dx}{(p+qx)^2}=\frac{1}{pq(p^2-q^2)}l\frac{p}{q}$ V. T. 139, N. 5.

15) $\int l(1+x^2)\frac{dx}{(1+x^2)^2}=\frac{\pi}{2}\left(l2-\frac{1}{2}\right)$ (VIII, 292).

16) $\int l(p^2+x^2)\frac{dx}{(q+x)^2}=\frac{1}{p^2+q^2}\left\{p\pi+2qlq+\frac{2p^2}{q}lp\right\}$ (VIII, 590).

17) $\int l(p^2+x^2)\frac{dx}{(q-x)^2}=\frac{1}{p^2+q^2}\left\{p\pi-2qlq-\frac{2p^2}{q}lp\right\}$ (VIII, 591).

18) $\int l(p^2+x^2)\frac{q^2-x^2}{(q^2+x^2)^2}dx=-\frac{\pi}{p+q}$ (IV, 253).

19) $\int l(p^2+x^2)\frac{q^2+x^2}{(q^2-x^2)^2}dx=\frac{p\pi}{p^2+q^2}$ (IV, 253).

20) $\int l(p^2-x^2)^2\,\frac{q^2-x^2}{(q^2+x^2)^2}dx=-\frac{2q\pi}{p^2+q^2}$ (IV, 253).

21) $\int l\left(\frac{1+x^2}{x^2}\right)\,\frac{x^2\,dx}{(1+x^2)^2}=\frac{\pi}{4}(2\,l2-1)$ (VIII, 292).

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22) $\int l\left(\frac{p+x}{p-x}\right)^2 \frac{x\,dx}{(q^2+x^2)^2} = \frac{p}{p^2+q^2}\,\frac{\pi}{q}$ (IV, 253).

23) $\int l\left(\frac{px+q}{qx+p}\right) \frac{dx}{(1+x)^2} = 0$ V. T. 139, N. 8.

F. Alg. rat. fract. à autre dén.; Log. en num. lx. TABLE 140. Lim. 0 et ∞.

1) $\int lx \frac{x^p\,dx}{(1-x)x} = -\pi^2\,Cosec^2\,p\pi\,[p<1]$ (IV, 254).

2) $\int \frac{lx}{x^r-1}\,\frac{dx}{x^p} = \left\{\frac{\pi}{r}\,Cosec\left(\frac{p-1}{r}\pi\right)\right\}^2$ V. T. 135, N. 8.

3) $\int lx \frac{1-x^p}{1-x^2}\,dx = \left(\frac{1}{2}\pi\,Tg\,\frac{1}{2}p\pi\right)^2$ (IV, 254).

4) $\int lx.\left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{x} = 0 =$ 5) $\int lx.\left(\frac{x^p}{1+x^{2p}}\right)^q \frac{dx}{1+x^2}$ (VIII, 272).

6) $\int lx.\left(\frac{x}{q^2+x^2}\right)^p \frac{dx}{x} = \frac{1}{2}\,q^{-p}\,lq\,\frac{\{\Gamma(\frac{1}{2}p)\}^2}{\Gamma(p)}$ (VIII, 272).

7) $\int l\frac{x}{q}.\left(\frac{x}{q^2+x^2}\right)^p \frac{dx}{x} = 0$ (VIII, 272).

8) $\int \frac{lx}{x+q}\,\frac{dx}{x+1} = \frac{1}{2(q-1)}(lq)^2$ (IV, 254).

9) $\int \frac{lx}{x+q}\,\frac{x^p}{x+1}\,dx = \frac{\pi}{q-1}\,Cosec^2\,p\pi.\{q^p\,Sin\,p\pi.lq+(1-q^p)\pi\,Cos\,p\pi\}$ (IV, 254).

10) $\int \frac{lx}{x+q}\,\frac{dx}{x-1} = \frac{1}{2(1+q)}\{\pi^2+(lq)^2\}$ (VIII, 579).

11) $\int \frac{lx}{x+q}\,\frac{x^p\,dx}{x-1} = \frac{\pi}{1+q}\,Cosec^2\,p\pi.\{\pi+q^p(Sin\,p\pi.lq-\pi\,Cos\,p\pi)\}$ (VIII, 579).

12) $\int \frac{lx}{x^2+q^2}\,\frac{dx}{1+p^2x^2} = -\frac{\pi}{2pq(1-p^2q^2)}\,lp$ V. T. 135, N. 4, 5.

13) $\int lx\,\frac{q+x^2}{p^2+x^2}\,\frac{dx}{1+x^2} = \frac{\pi}{4}\,\frac{1+q}{p}\,lp$ V. T. 321, N. 15, 16.

14) $\int (lx)^{q-1}\,\frac{x^p\,dx}{1-2rx\,Cos\,\lambda+r^2x^2} = (-1)^{q-1}\,\frac{1}{r}\,Cosec\,\lambda.\Gamma(q)\sum_0^\infty \frac{r^n}{(p+n)^q}\,Sin\,n\lambda$ (VIII, 514).

15) $\int (lx)^{q-1} \frac{1 - rx\,Cos\lambda}{1 - 2rx\,Cos\lambda + r^2x^2} x^{p-1}\,dx = (-1)^{q-1}\Gamma(q)\sum_0^\infty \frac{r^n}{(p+n)^q} Cos\,n\lambda$ (VIII, 514).

16) $\int (lx)^{2a+1} \frac{dx}{1 - 2x\,Cos\lambda + x^2} = 0$ De Morgan, Int. Calc.

F. Alg. rat. fract. à autre dén.; Log. en num. d'autre forme. TABLE 141. Lim. 0 et ∞.

1) $\int (lx)^2 \frac{dx}{(x-1)(x+q)} = \frac{1}{3(1+q)} lq.\{\pi^2 + (lq)^2\}$ (VIII, 579).

2) $\int (lx)^3 \frac{dx}{(x-1)(x+q)} = \frac{1}{4(1+q)}\{\pi^2 + (lq)^2\}^2$ (VIII, 580).

3) $\int (lx)^4 \frac{dx}{(x-1)(x+q)} = \frac{1}{15(1+q)} lq.\{\pi^2 + (lq)^2\}^2\{7\pi^2 + 3(lq)^2\}$ (VIII, 580).

4) $\int (lx)^5 \frac{dx}{(x-1)(x+q)} = \frac{1}{6(1+q)}\{\pi^2 + (lq)^2\}^2\{3\pi^2 + (lq)^2\}^2$ (VIII, 580).

5) $\int lx.l\frac{x}{q}\frac{dx}{(x-1)(x-q)} = \frac{1}{6(q-1)} lq.\{4\pi^2 + (lq)^2\}\,[p^2 < 1, q > 1]$ (IV, 255).

6) $\int lx.l\frac{x}{q}\frac{x^p}{x-1}\frac{dx}{x-q} = \frac{\pi^2}{q-1} Cosec^2 p\pi.\{(q^p+1)lq - 2\pi(q^p-1)Cot\,p\pi\}\,[p^2 < 1, q > 1]$ (IV, 255).

7) $\int l(1+x)\frac{xlx - x - q}{(x+q)^2}\frac{dx}{x} = \frac{1}{2(q-1)}(lq)^2$ V. T. 140, N. 8.

8) $\int l(1-x)^2\frac{xlx - x - q}{(x+q)^2}\frac{dx}{x} = \frac{-1}{1+q}\{\pi^2 + (lq)^2\}$ V. T. 140, N. 10.

9) $\int l(1+x^2)\frac{dx}{x(1+x^2)} = \frac{1}{12}\pi^2$ (VIII, 291).

10) $\int l(1+p^2x^2)\frac{1}{q^2+r^2x^2}\frac{dx}{s^2+t^2x^2} = \frac{\pi}{q^2t^2 - s^2r^2}\left\{\frac{t}{s}l\left(1+\frac{ps}{t}\right) - \frac{r}{q}l\left(1+\frac{pq}{r}\right)\right\}$ (VIII, 331).

11) $\int l(1+p^2x^2)\frac{x^2}{q^2+r^2x^2}\frac{dx}{s^2+t^2x^2} = \frac{\pi}{q^2t^2 - s^2r^2}\left\{\frac{q}{r}l\left(1+\frac{pq}{r}\right) - \frac{s}{t}l\left(1+\frac{ps}{t}\right)\right\}$ (VIII, 331).

12) $\int l\left(\frac{q^2+x^2}{x^2}\right)\frac{(r-xi)^{-p} + (r+xi)^{-p}}{2}dx = \frac{\pi}{p-1}\left\{\left(\frac{1}{r}\right)^{p-1} - \left(\frac{1}{q+r}\right)^{p-1}\right\}$ (VIII, 581).

13) $\int l\left(\frac{1+x}{1-x}\right)^2\frac{dx}{x(1+x^2)} = \frac{1}{2}\pi^2$ (VIII, 286).

1) $\int lx \frac{1-x}{(1+x)^2} \frac{dx}{\sqrt{x}} = -2\pi$ V. T. 139, N. 11. 2) $\int lx \frac{1+x}{(1-x)^2} \frac{dx}{\sqrt{x}} = 0$ V. T. 139, N. 19.

3) $\int lx \frac{dx}{\sqrt{(1+x^2)\{1+(1-p^2)x^2\}}} = -\frac{1}{2} F'(p) . l(1-p^2)$ $[p^2<1]$ V. T. 322, N. 11.

4) $\int lx \frac{dx}{\sqrt{(1+x^2)\{x^2+(1-p^2)\}}} = \frac{1}{2} F'(p) . l(1-p^2)$ $[p^2<1]$ V. T. 322, N. 11.

5) $\int lx \frac{dx}{(q+x)^{b+\frac{1}{2}}} = \frac{2}{(2b-1)q^{b-\frac{1}{2}}} \left\{ lq + 2l2 - \sum_{0}^{b-2} \frac{1}{n} - 2 \sum_{b-1}^{2b-1} \frac{1}{n} \right\}$ (IV, 257).

6) $\int lx \frac{dx}{(1-x^2)^{\frac{1}{2}-a}} = -\frac{1^{a/2}}{2^{a+1} 1^{a/1}} \frac{\pi}{2} \left\{ A + 2l2 + Z'(a+1) \right\}$ V. T. 306, N. 8.

7) $\int l(1+x) \frac{dx}{x\sqrt{x}} = 2\pi$ V. T. 134, N. 12.

8) $\int l(1+x) \frac{dx}{x^{p+\frac{3}{2}}} = \frac{2}{2p+1} \pi \, Sec \, p\pi \left(p^2 < \frac{1}{4} \right)$ V. T. 134, N. 12.

9) $\int l(1-x)^2 \frac{dx}{x\sqrt{x}} = 0$ V. T. 134, N. 13.

10) $\int l \left(\frac{1 - Cothp^2 \lambda + x^2}{1 + Cothp^2 \lambda + x^2} \right) \frac{x}{1+(1-Coshp^2 \lambda) x^2} \frac{dx}{\sqrt{1+x^2}} = \frac{2\lambda \, l \, Sinhp \lambda}{Sinhp \lambda . Coshp \lambda}$ V. T. 318, N. 7.

11) $\int l \left(\frac{\sqrt{1+x^2}+p}{\sqrt{1+x^2}-p} \right) \frac{dx}{\sqrt{1+x^2}} = \pi \, Arcsin p$ (VIII, 291).

12) $\int l(p+\sqrt{x}) \frac{dx}{(q+x)^2} = \frac{1}{2(p^2+q)} \left\{ lq + \frac{p\pi}{\sqrt{q}} + \frac{2p^2}{q} lp \right\}$ V. T. 139, N. 9.

13) $\int l(p-\sqrt{x})^2 \frac{dx}{(q+x)^2} = \frac{1}{p^2+q} \left\{ lq - \frac{p\pi}{\sqrt{q}} + \frac{2p^2}{q} lp \right\}$ V. T. 139, N. 10.

F. Algébrique; Logar. en dén. | TABLE 143. | Lim. 0 et ∞.

1) $\int \frac{x^{p-1} - x^{q-1}}{1+x^{2q}} \frac{dx}{lx} = l \, Tg \frac{p\pi}{4q}$ V. T. 143, N. 2.

2) $\int \frac{x^{p-1} - x^{q-1}}{1+x^r} \frac{dx}{lx} = l \left(Tg \frac{p\pi}{2r} . Cot \frac{q\pi}{2r} \right)$ (VIII, 486).

3) $\int \frac{x^{p-1}-x^{q-1}}{1-x^{2q}} \frac{dx}{lx} = l\,Sin\frac{p\pi}{2q}$ V. T. 143, N. 4.

4) $\int \frac{x^{p-1}-x^{q-1}}{1-x^{r}} \frac{dx}{lx} = l\left(Sin\frac{p\pi}{r}.Cosec\frac{q\pi}{r}\right)$ (VIII, 485).

5) $\int \frac{x^{p-1}-x^{q-1}}{1+x^{2(2a+1)}} \frac{1+x^2}{lx}dx = l\left[Tg\left\{\frac{p\pi}{4(2a+1)}\right\}.Tg\left\{\frac{p+2}{2a+1}\frac{\pi}{4}\right\}.Cot\left\{\frac{q\pi}{4(2a+1)}\right\}.Cot\left\{\frac{q+2}{2a+1}\frac{\pi}{4}\right\}\right]$

6) $\int \frac{x^{p-1}-x^{q-1}}{1-x^{2a}} \frac{1-x^2}{lx}dx = l\left\{Sin\frac{p\pi}{2a}.Sin\left(\frac{q+2}{2a}\pi\right).Cosec\frac{q\pi}{2a}.Cosec\left(\frac{p+2}{2a}\pi\right)\right\}$

Sur 5) et 6) voyez Lindmann, Gr. 35, 475.

7) $\int \left\{\frac{(q-1)x}{(1+x)^2}-\frac{1}{1+x}+\frac{1}{(1+x)^q}\right\}\frac{dx}{x\,l(1+x)} = l\Gamma(q)$ (VIII, 586).

8) $\int l(1+x^q)\left\{\frac{(p-q)x^p+\frac{1}{2}q\,x^{\frac{1}{2}q}}{lx}+\frac{x^{\frac{1}{2}q}-x^p}{(lx)^2}\right\}\frac{dx}{x^{q+1}} = q\,l\,Cot\frac{p\pi}{2q}$ V. T. 143, N. 1.

9) $\int l(1+x^r).\left\{\frac{(p-r)x^p-(q-r)x^q}{lx}+\frac{x^q-x^p}{(lx)^2}\right\}\frac{dx}{x^{r+1}} = r\,l\left(Tg\frac{q\pi}{2r}.Cot\frac{p\pi}{2r}\right)$ V. T. 143, N. 2.

10) $\int l(1-x^r)^2.\left\{\frac{(p-r)x^p-(q-r)x^q}{lx}+\frac{x^q-x^p}{(lx)^2}\right\}\frac{dx}{x^{r+1}} = 2\,r\,l\left(Sin\frac{p\pi}{r}.Cosec\frac{q\pi}{r}\right)$ V. T. 143, N. 4.

F. Algébrique; Logarithmique. TABLE 144. Lim. 1 et ∞.

1) $\int (lx)^p\frac{dx}{x^2} = \Gamma(1+p)$ V. T. 30, N. 2.

2) $\int lx\frac{dx}{1+x^2} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

3) $\int l(1+x)\frac{dx}{1+x^2} = \frac{\pi}{8}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 534).

4) $\int l(1-x)^2\frac{dx}{1+x^2} = \frac{\pi}{4}l2$ V. T. 115, N. 5.

5) $\int l(1+x^2)\frac{dx}{1+x^2} = \frac{\pi}{2}l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 8.

6) $\int l(1-x^2)^2\frac{dx}{1-x^2} = \frac{\pi}{2}l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

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7) $\int l(1-x^4)^2 \frac{dx}{1+x^2} = \frac{3\pi}{2} l2 + 4 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 14.

8) $\int l\left(\frac{1+x^2}{1+x}\right) \frac{dx}{1+x^2} = \frac{3\pi}{8} l2$ V. T. 115, N. 18 et T. 144, N. 1.

9) $\int l\left(\frac{1+x^2}{1-x}\right)^2 \frac{dx}{1+x^2} = \frac{3\pi}{4} l2 + 2 \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 19 et T. 144, N. 1.

10) $\int \frac{dx}{x^{p+1}\sqrt{lx}} = \sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

11) $\int \frac{1}{q+lx} \frac{dx}{x^{p+1}} = -e^{pq} Ei(-pq)$ V. T. 91, N. 1.

12) $\int \frac{1}{q-lx} \frac{dx}{x^{p+1}} = e^{-pq} Ei(pq)$ V. T. 91, N. 4.

13) $\int \frac{1}{q^2+(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{q}\left\{Ci(pq).Sin pq - Si(pq).Cos pq + \frac{1}{2}\pi Cos pq\right\}$ V. T. 91, N. 7.

14) $\int \frac{lx}{q^2+(lx)^2} \frac{dx}{x^{p+1}} = -Ci(pq).Cos pq - Si(pq).Sin pq + \frac{1}{2}\pi Sin pq$ V. T. 91, N. 8.

15) $\int \frac{1}{q^2-(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{2q}\left\{e^{-pq} Ei(pq) - e^{pq} Ei(-pq)\right\}$ V. T. 91, N. 14.

16) $\int \frac{lx}{q^2-(lx)^2} \frac{dx}{x^{p+1}} = \frac{1}{2}\left\{e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\right\}$ V. T. 91, N. 15.

17) $\int lx \frac{dx}{x^2\sqrt{x^2-1}} = 1 - l2$ V. T. 118, N. 4.

F. Algébrique;
Logarithmique. TABLE 145. Lim. diverses.

1) $\int_0^{\sqrt{\frac{1}{2}}} \frac{lx.dx}{\sqrt{1-x^2}} = -\frac{1}{4}\pi l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 254, N. 11.

2) $\int_0^{\frac{1}{2}} l(1-x)\frac{dx}{x} = \frac{1}{2}(l2)^2 - \frac{1}{12}\pi^2$ (VIII, 268).

3) $\int_0^2 l(1-x)\frac{dx}{x} = -\frac{1}{4}\pi^2 + \pi i l2$ (VIII, 269).

4) $\int_0^{\frac{1}{e}} \frac{dx\sqrt[q]{x}}{x\sqrt{-(1+lx)}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

5) $\int_0^{\frac{1}{e}} l\left(2\,l\frac{1}{x}-1\right)\frac{x^{2q-1}\,dx}{lx}=-\frac{1}{2}\{Ei(-q)\}^2$ V. T. 359, N. 1.

6) $\int_0^{\frac{1}{2}(-1+\sqrt{5})} l(1-x)\frac{dx}{x}=-\frac{1}{10}\pi^2+\frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2+\frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)$ (IV, 260).

7) $\int_0^{\frac{1}{2}(3-\sqrt{5})} l(1-x)\frac{dx}{x}=-\frac{1}{15}\pi^2-\frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2+\frac{3}{5}l\left(\frac{1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)$ (IV, 260).

8) $\int_0^{\frac{1}{2}(1-\sqrt{5})} l(1-x)\frac{dx}{x}=\frac{1}{15}\pi^2-\frac{3}{10}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2+\frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)+$
$+l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

9) $\int_0^{\frac{1}{2}(1+\sqrt{5})} l(1-x)\frac{dx}{x}=-\frac{7}{30}\pi^2+\frac{3}{10}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2-\frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)+$
$+\pi i\,l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

10) $\int_0^{-\frac{1}{2}(1+\sqrt{5})} l(1-x)\frac{dx}{x}=\frac{1}{10}\pi^2+\frac{4}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2-\frac{2}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{3-\sqrt{5}}{2}\right)+$
$+l\left(\frac{-1+\sqrt{5}}{2}\right).l\left(\frac{1+\sqrt{5}}{2}\right)$ (IV, 260).

11) $\int_0^{\frac{1}{2}(3+\sqrt{5})} l(1-x)\frac{dx}{x}=-\frac{4}{15}\pi^2+\frac{1}{2}\left\{l\left(\frac{3+\sqrt{5}}{2}\right)\right\}^2+\frac{1}{5}\left\{l\left(\frac{1+\sqrt{5}}{2}\right)\right\}^2-\frac{3}{5}l\left(\frac{-1+\sqrt{5}}{2}\right).$
$l\left(\frac{3-\sqrt{5}}{2}\right)-\pi i\,l\left(\frac{3+\sqrt{5}}{2}\right)$ (IV, 260).

12) $\int_0^{2a} l\{x(x-a)\}\frac{dx}{1-2ax+x^2}=(Arcsin\,a)^2$ Newmann, C. & D. M. J. 2, 172.

13) $\int_1^{\sqrt{\frac{1}{2}}} l(1-x^2)^2\frac{dx}{\sqrt{1-x^2}}=\pi\,l2+2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 254, N. 13.

14) $\int_1^{\frac{1}{e}}\frac{lx}{(1-lx)^2}\frac{dx}{x^2}=\frac{1}{2}e-1$ V. T. 80, N. 6.

15) $\int_{-1}^1\frac{l(1-x^2)}{p+qx}\frac{dx}{\sqrt{1-x^2}}=\frac{2\pi}{\sqrt{p^2-q^2}}\,l\,\frac{\sqrt{p^2-q^2}}{p+\sqrt{p^2-q^2}}$ (VIII, 549).

16) $\int_{-1}^1 l(1+px)^2\frac{dx}{\sqrt{1-x^2}}=2\pi\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1],=-2\pi\,l2p\,[p^2>1]$ (VIII, 550).

17) $\int_{-1}^1 l(1-px)^2\frac{dx}{\sqrt{1-x^2}}=2\pi\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1],=-2\pi\,l2p\,[p^2>1]$ (VIII, 550).

18) $\int_{-1}^1 l(p+x)^2\frac{dx}{\sqrt{1-x^2}}=-2\pi\,l2\,[p^2<1],=2\pi\,l\frac{p+\sqrt{p^2-1}}{2}\,[p^2>1]$ (VIII, 550).

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19) $\int_{-1}^{1} l(p-x)^2 \frac{dx}{\sqrt{1-x^2}} = -2\pi l 2 \; [p^2<1], = 2\pi l \frac{p+\sqrt{p^2-1}}{2} \; [p^2>1]$ (VIII, 550).

20) $\int_{-1}^{1} l(1+px) \frac{dx}{x\sqrt{1-x^2}} = Arcsin\, p =$ 21) $\int_{-1}^{1} l\left(\frac{1}{1-px}\right) \frac{dx}{x\sqrt{1-x^2}} \; [p^2<1]$ (VIII, 550).

22) $\int_{-1}^{1} l(px-q) \frac{x}{1-rx^2} \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{\sqrt{r(1-r)}} l \frac{p\sqrt{r}-\{1-\sqrt{1-r}\}\{q+\sqrt{q^2-p^2}\}}{p\sqrt{r}+\{1-\sqrt{1-r}\}\{q+\sqrt{q^2-p^2}\}}$ (IV, 261).

23) $\int_{-1}^{1} l\left(\frac{1-x^a}{1-x}\right) \frac{x\,dx}{\sqrt{1-x^2}} = \pi - 2\pi \sum_{1}^{\frac{1}{2}(a-1)} Cos\left(\frac{1}{4}\pi - \frac{2n+1}{a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)}$ (IV, 261).

24) $\int_{-1}^{1} l\left(\frac{1-x^a}{1-x}\right) \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{\sqrt{1-x^2}} = 2\pi\, Cosec\, \lambda . \sum_{1}^{\frac{1}{2}(a-1)} l \frac{1-2g\, Tg\frac{1}{2}\lambda + h\, Tg^2\frac{1}{2}\lambda}{1+2g\, Tg\frac{1}{2}\lambda + h\, Tg^2\frac{1}{2}\lambda}$

$\left[\begin{array}{l} g = Cos\left(\frac{2n+1}{a}\pi\right) + Cos\left(\frac{1}{4}\pi + \frac{2n+1}{2a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)} \\ h = 1 + 2\, Sin\left(\frac{2n+1}{a}\pi\right) + 2\, Sin\left(\frac{1}{4}\pi + \frac{2n+1}{2a}\pi\right) . \sqrt{2\, Sin\left(\frac{2n+1}{a}\pi\right)} \end{array}\right]$ (IV, 261).

25) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) \frac{dx}{q+xi} = 2\pi l \frac{p+q}{q}$ (IV, 261).

26) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) \frac{dx}{q-xi} = 0$ (IV, 261).

27) $\int_{-\infty}^{\infty} l\left(1+\frac{pi}{x}\right) . (-xi)^{q-1} \frac{dx}{r^2+x^2} = \pi r^{q-1} l \frac{p+r}{r}$

28) $\int_{-\infty}^{\infty} l(p^2 - 2px\, Cos\,\lambda + x^2) \frac{dx}{1+x^2} = \pi\, l(1+2p\, Sin\,\lambda + p^2)$

(27, 28) Cauchy, Ann. Math. 17, 84.

29) $\int_{p}^{\infty} lx \frac{dx}{(1+x^2)^2} = l\frac{1+p}{p} + \frac{1}{1+p} lp$ (VIII, 590).

30) $\int_{p}^{\infty} l(1+x) \frac{dx}{x^2} = \frac{1}{p} l(1+p) + l\frac{1+p}{p}$ (VIII, 590).

31) $\int_{-q}^{q} l(x-r) \frac{x}{q^2-px^2} \frac{dx}{\sqrt{q^2-x^2}} = \frac{\pi q}{\sqrt{p(1-p)}} l \frac{q\sqrt{p}-\{1-\sqrt{1-p}\}\{r+\sqrt{r^2-q^2}\}}{q\sqrt{p}+\{1-\sqrt{1-p}\}\{r+\sqrt{r^2-q^2}\}}$ (IV, 262).

32) $\int_{p}^{q} \frac{lx.dx}{(x+p)(x+q)} = \frac{1}{2(q-p)} l(pq) . l\left\{\frac{(p+q)^2}{4pq}\right\}$

33) $\int_{p}^{q} l\left(\frac{q+x}{p+x}\right) \frac{dx}{x} = \frac{1}{2}\left(l\frac{q}{p}\right)^2$

(32, 33) Winckler, Sitz. Ber. Wien. B. 44, 477.

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34) $\int_p^q lx \frac{dx}{\sqrt{(x^2-p^2)(q^2-x^2)}} = \frac{1}{2q} lpq . F'\left(\sqrt{\frac{q^2-p^2}{q^2}}\right)$ (VIII, 300).

35) $\int_p^q l\left(\frac{1+rx}{1-rx}\right) \frac{dx}{\sqrt{(x^2-p^2)(q^2-x^2)}} = \frac{\pi}{q} F\left\{\frac{p}{q}, Arcsin\, rp\right\} [r<1]$ (VIII, 311).

36) $\int_p^q \left(l\frac{x}{p}\right)^{r-1} \left(l\frac{q}{x}\right)^{s-1} \frac{dx}{x} = \frac{\Gamma(r)\Gamma(s)}{\Gamma(r+s+1)} \left(l\frac{q}{p}\right)^{r+s-1}$

37) $\int_p^q \frac{dx}{x\sqrt{\left(l\frac{x}{p}.l\frac{q}{x}\right)}} = \pi$

Winckler, Sitz. Ber. Wien. B. 44, 477.

F. Algébr.; Logar. | Intégr. Lim. [Lim. $k=\infty$]. TABLE 146. Lim. diverses.

1) $\int_0^1 \frac{x^k}{1+2x\,Cos\,\lambda+x^2} (lx)^{p-1} dx = 0$ (VIII, 319).

2) $\int_0^1 \left\{\frac{x^{k-1}}{lx} + \frac{x^{p+k}}{1-x}\right\} dx = 0$ (VIII, 318).

F. Algébrique; Log. de Log. TABLE 147. Lim. 0 et 1.

1) $\int ll\frac{1}{x}.x^{q-1} dx = -\frac{1}{q}(A+lq)$ V. T. 256, N. 2.

2) $\int ll\frac{1}{x}.\left(l\frac{1}{x}\right)^{p-1}.x^{q-1} dx = \frac{1}{q^p}\Gamma(p)\{Z'(p)-lq\}$ V. T. 353, N. 1.

3) $\int ll\frac{1}{x}.x^{q-1} \frac{dx}{\sqrt{l\frac{1}{x}}} = -(A+2l2+lq)\sqrt{\frac{\pi}{q}}$ V. T. 256, N. 8.

4) $\int ll\frac{1}{x} \frac{1}{1+x^2} \frac{dx}{\sqrt{l\frac{1}{x}}} = \sqrt{\pi}.\sum_0^\infty \frac{(-1)^{n+1}}{\sqrt{2n+1}} \{l(2n+1)+2l2+A\}$ V. T. 357, N. 12.

5) $\int ll\frac{1}{x} \frac{x^p+x^{-p}}{1+x^2} dx = \frac{1}{2}\pi Sec\frac{1}{2}p\pi.(l\pi-A) - \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1-p)\pi\}}{2n+1-p} + \frac{l\{(2n+1+p)\pi\}}{2n+1+p}\right\}$ V. T. 257, N. 1.

6) $\int ll\frac{1}{x} \frac{x^p-x^{-p}}{1-x^2} dx = \frac{1}{2}\pi Tg\frac{1}{2}p\pi.(A-l\pi) + \sum_0^\infty \left\{\frac{l\{(2n+1-p)\pi\}}{2n+1-p} - \frac{l\{(2n+1+p)\pi\}}{2n+1+p}\right\}$ V. T. 257, N. 3.

7) $\int l l \frac{1}{x} \frac{dx}{(1+x)^2} = \frac{1}{2}\left\{Z'\left(\frac{1}{2}\right) + l 2\pi\right\}$ (IV, 263).

8) $\int l l \frac{1}{x} \frac{1}{1+x+x^2} \frac{dx}{\sqrt{l\frac{1}{x}}} = Cosec \frac{1}{3}\pi . \sqrt{\pi} . \sum_1^\infty \frac{(-1)^n}{\sqrt{n}} Sin \frac{1}{3} n\pi . \{l 4 n + \mathrm{A}\}$ V. T. 357, N. 13.

9) $\int l l \frac{1}{x} \frac{dx}{1+2x\, Cos\,\lambda + x^2} = \frac{1}{2}\pi\, Cosec\,\lambda . l \frac{(2\pi)^{\frac{\lambda}{\pi}} \Gamma\left(\frac{1}{2}+\frac{\lambda}{2\pi}\right)}{\Gamma\left(\frac{1}{2}-\frac{\lambda}{2\pi}\right)}$ (IV, 263).

10) $\int l\{q^2+(lx)^2\} \frac{dx}{1+x^2} = \pi l \frac{2\Gamma\left(\frac{2q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{2q+\pi}{4\pi}\right)} + \frac{1}{2}\pi l \frac{\pi}{2}$ V. T. 258, N. 11.

11) $\int l\{q^2+(lx)^2\} \frac{x^{\frac{b}{a}}+x^{-\frac{b}{a}}}{1+x^2} dx = \pi\, Sec \frac{b\pi}{2a} . l 2 a\pi + 2\pi \sum_1^a (-1)^{n-1} Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\} .$

$l \frac{\Gamma\left\{\frac{2q+2\pi n-\pi}{4a\pi}+\frac{1}{2}\right\}}{\Gamma\left\{\frac{2q+2\pi n-\pi}{4a\pi}\right\}} \begin{bmatrix} a+b \\ \text{impair}\end{bmatrix}, = \pi Sec\frac{b\pi}{2a} . l a\pi + 2\pi \sum_1^{\frac{1}{2}(a-1)} (-1)^{n-1} Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\} .$

$l \frac{\Gamma\left\{\frac{2q-2\pi n+\pi}{2a\pi}+1\right\}}{\Gamma\left\{\frac{2q+2\pi n-\pi}{2a\pi}\right\}} \begin{bmatrix} a+b \\ \text{pair}\end{bmatrix}$ V. T. 258, N. 7.

12) $\int l\left\{\frac{1}{4}\pi^2 a^2+(lx)^2\right\} \frac{x^{-\frac{b}{a}}+x^{\frac{b}{a}}}{1+x^2} dx = \pi\, Sec \frac{b\pi}{2a} . l\pi + \pi \sum_1^a (-1)^{n-1} Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\} .$

$l\left\{\left(\frac{a+1}{2}-n\right) Cot\left(\frac{\pi}{4}-\frac{2n-1}{4a}\pi\right)\right\} \begin{bmatrix} a+b \\ \text{impair}\end{bmatrix}$ V. T. 258, N. 9.

13) $\int l\left\{\frac{1}{4}\pi^2+(lx)^2\right\} \frac{dx}{1+x^2} = \frac{1}{2}\pi l 2$ V. T. 258, N. 1.

14) $\int l\{q^2+(lx)^2\} \frac{x^{-\frac{b}{a}}-x^{\frac{b}{a}}}{1-x^2} dx = \pi\, Tg \frac{b\pi}{2a} . l 2 a\pi + 2\pi \sum_1^{a-1} (-1)^{n-1} Sin \frac{n b\pi}{a} . l \frac{\Gamma\left(\frac{q+n\pi}{2a\pi}+\frac{1}{2}\right)}{\Gamma\left(\frac{q+n\pi}{2a\pi}\right)} \begin{bmatrix} a+b \\ \text{impair}\end{bmatrix}, =$

$= \pi\, Tg \frac{b\pi}{2a} . l a\pi + 2\pi \sum_1^{\frac{1}{2}(a-1)} (-1)^{n-1} Sin \frac{n b\pi}{a} . l \frac{\Gamma\left(\frac{q-n\pi}{a\pi}+1\right)}{\Gamma\left(\frac{q+n\pi}{a\pi}\right)} \begin{bmatrix} a+b \\ \text{pair}\end{bmatrix}$ V. T. 258, N. 8.

15) $\int l\left\{\frac{1}{4}\pi^2 a^2+(lx)^2\right\}\frac{x^{-\frac{b}{a}}-x^{\frac{b}{a}}}{1-x^2}\,dx=\pi\, Tg\,\frac{b\pi}{2a}.l\pi+\pi\sum_1^{a-1}(-1)^{n-1}\,Sin\,\frac{nb\pi}{a}.l\left\{\left(\frac{1}{2}a-n\right)\right.$

$\left.Cot\left(\frac{\pi}{4}-\frac{n\pi}{2a}\right)\right\}\begin{bmatrix}b+a\\ \text{impair}\end{bmatrix}$ V. T. 258, N. 10.

16) $\int l\{q^2+(lx)^2\}\frac{dx}{(1+x)\sqrt{x}}=2\pi\, l\frac{2\Gamma\left(\frac{q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{q+\pi}{4\pi}\right)}+\pi\, l\pi$ V. T. 258, N. 11.

17) $\int l\{q^2+(lx)^2\}\frac{1+x^{\frac{2}{3}}}{1+x^{\frac{2}{3}}+x^{\frac{4}{3}}}\frac{dx}{\sqrt[3]{x^2}}=-\pi\, l\pi-2\pi\, Sin\,\frac{\pi}{3}.l\frac{6\Gamma\left(\frac{q+4\pi}{6\pi}\right)\Gamma\left(\frac{q+5\pi}{6\pi}\right)}{\Gamma\left(\frac{q+\pi}{6\pi}\right)\Gamma\left(\frac{q+2\pi}{6\pi}\right)}$

V. T. 258, N. 12.

18) $\int\left\{(p-1)x-\frac{(1-lx)^{-1}-(1-lx)^{-p}}{l(1-lx)}\right\}\frac{dx}{x\,lx}=-l\Gamma(p)$ V. T. 354, N. 16.

19) $\int\left\{\frac{x}{lx}+\frac{1}{(1-lx)^2\, l(1-lx)}\right\}\frac{dx}{x}=0$ V. T. 354, N. 14.

20) $\int\left\{x-\frac{(1-lx)^{-(p+1)}}{l(1-lx)}\right\}\frac{dx}{x\,lx}=-lp$ V. T. 354, N. 13.

F. Algébrique; Log. de Log. TABLE 148. Lim. 0 ou 1 et ∞.

1) $\int_0^\infty llx\frac{dx}{1+x^2}=\frac{1}{2}\pi\, l\left(\frac{\Gamma\left(\frac{3}{4}\right)}{\Gamma\left(\frac{1}{4}\right)}\sqrt{2\pi}\right)$ (IV, 264).

2) $\int_0^\infty llx\frac{dx}{1+x+x^2}=\frac{\pi}{\sqrt{3}}\, l\left(\frac{\Gamma\left(\frac{2}{3}\right)}{\Gamma\left(\frac{1}{3}\right)}\sqrt[3]{2\pi}\right)$ (IV, 265).

3) $\int_0^\infty llx\frac{x^{a-1}-x^{-a-1}}{x^b-x^{-b}}\,dx=\frac{\pi}{2b}Tg\,\frac{a\pi}{2b}.l2\pi+\frac{\pi}{b}\sum_1^{b-1}(-1)^{n-1}\,Sin\,\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b+n}{2b}\right)}{\Gamma\left(\frac{n}{2b}\right)}\begin{bmatrix}a+b\\ \text{impair}\end{bmatrix},=$

$=\frac{\pi}{2b}\,Tg\,\frac{a\pi}{2b}.l\pi+\frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}\,Sin\,\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b-n}{b}\right)}{\Gamma\left(\frac{n}{b}\right)}\begin{bmatrix}a+b\\ \text{pair}\end{bmatrix}$ (IV, 265).

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F. Algébrique; Log. de Log. — **TABLE 148, suite.** — Lim. 0 ou 1 et ∞.

4) $\int_0^\infty llx\,\frac{x^{a-2}\,dx}{1+x^2+x^4+...+x^{2a-2}}=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l2\pi+\frac{\pi}{a}\sum_1^{a-1}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a+n}{2a}\right)}{\Gamma\left(\frac{n}{2a}\right)}\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right],=$

$=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l\pi+\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a-n}{n}\right)}{\Gamma\left(\frac{n}{a}\right)}\left[\begin{matrix}a\\ \text{impair}\end{matrix}\right]$ (IV, 265).

5) $\int_1^\infty llx\,\frac{dx}{1-x+x^2}=\frac{2\pi}{\sqrt{3}}\left\{\frac{5}{6}l2\pi-l\Gamma\left(\frac{1}{6}\right)\right\}$ (IV, 265).

6) $\int_1^\infty llx\frac{x^{a-1}+x^{-a-1}}{x^b+x^{-b}}dx=\frac{\pi}{2b}Sec\frac{a\pi}{2b}.l2\pi+\frac{\pi}{b}\sum_1^b(-1)^{n-1}Cos\left\{\left(n-\frac{1}{2}\right)\frac{a\pi}{b}\right\}.l\frac{\Gamma\left(\frac{2b+2n-1}{4b}\right)}{\Gamma\left(\frac{2n-1}{4b}\right)}\left[\begin{matrix}a+b\\ \text{impair}\end{matrix}\right],=$

$=\frac{\pi}{2b}Sec\frac{a\pi}{2b}.l\pi+\frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}Cos\left\{\left(n-\frac{1}{2}\right)\frac{a\pi}{b}\right\}.l\frac{\Gamma\left(\frac{2b-2n+1}{2b}\right)}{\Gamma\left(\frac{2n-1}{2b}\right)}\left[\begin{matrix}a+b\\ \text{pair}\end{matrix}\right]$ (IV, 265).

F. Algébrique; Circ. Dir. — **TABLE 149.** — Lim. 0 et 1.

1) $\int x\,Sin\,px\,dx=\frac{1}{p^2}(Sin\,p-p\,Cos\,p)$ (VIII, 363).

2) $\int Cos\,2px.(1-x^2)^{q-1}dx=\frac{\Gamma(q)}{2\Gamma(q+\frac{1}{2})}\sqrt{\pi}.\sum_0^\infty(-1)^n\frac{p^{2n}}{1^{n/1}(q+\frac{1}{2})^{n/1}}$ (VIII, 514).

3) $\int Cos\,rx.(1-x^2)^{q-p-1}x^{2p-1}dx=\frac{\Gamma(p)\Gamma(q-p)}{2\Gamma(q)}\sum_0^\infty(-1)^n\frac{p^{n/1}}{1^{2n/1}q^{n/1}}r^{2n}$ (IV, 266).

4) $\int Cos(\sqrt{rx}).(1-x)^{q-p-1}x^{p-1}dx=\frac{\Gamma(p)\Gamma(q-p)}{\Gamma(q)}\sum_0^\infty(-r)^n\frac{p^{n/1}}{1^{2n/1}q^{n/1}}$ V. T. 149, N. 3.

5) $\int Sin\,px\frac{dx}{x}=Si(p)=\sum_1^\infty\frac{1}{2n-1}\frac{p^{2n-1}}{1^{2n-1/1}}$ (IV, 266).

6) $\int Sin\,2px.dx\sqrt{1-x^2}=\sum_0^\infty\frac{(2p)^{2n+1}}{(3^{n/2})^2}\frac{(-1)^n}{2n+3}$ (VIII, 515).

7) $\int Cos\,2px.dx\sqrt{1-x^2}=\frac{\pi}{2}\sum_0^\infty\frac{p^{2n}}{(1^{n/1})^2}\frac{(-1)^n}{n+1}$ (VIII, 515).

8) $\int Cos\,2px.(1-x^2)^{a-\frac{1}{2}}dx=\frac{1^{a/2}}{2^{a+2}1^{a/1}}\left\{1+\sum_1^\infty(-1)^n\frac{p^{2n}}{1^{n/1}(a+1)^{n/1}}\right\}$ (IV, 266).

9) $\int Sin 2px \frac{dx}{\sqrt{1-x^2}} = \overset{\infty}{\underset{0}{\Sigma}} (-1)^n \frac{(2p)^{2n+1}}{(3^{n/2})^2}$ (VIII, 516).

10) $\int Cos 2px \frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2} \overset{\infty}{\underset{0}{\Sigma}} (-1)^2 \frac{p^{2n}}{(1^{n/1})^2}$ (VIII, 516).

11) $\int \left\{ Cos\, qx - Cos \frac{q}{x} \right\} \frac{dx}{1-x^2} = \frac{1}{2} \pi\, Sin\, q$ (VIII, 687).

12) $\int \left\{ \frac{x\, Cos\, qx}{1-x^2} + r \frac{Cos \frac{q}{x^r}}{x^r - x^{-r}} \right\} \frac{dx}{x} = \frac{1}{2} \pi (Sin\, q - Cos\, q\,.\, l\, r)$ (IV, 266).

13) $\int Sin \left\{ p \left(x^2 - \frac{1}{x^2} \right) \right\} . \left(x - \frac{1}{x} \right) \frac{dx}{x} = -\frac{1}{2} e^{-2p} \sqrt{\frac{\pi}{2p}}$ V. T. 149, N. 18, 19.

14) $\int Cos \left\{ p \left(x^2 - \frac{1}{x^2} \right) \right\} . \left(x + \frac{1}{x} \right) \frac{dx}{x} = -\frac{1}{2} e^{-2p} \sqrt{\frac{\pi}{2p}}$ V. T. 149, N. 18, 19.

15) $\int Sin \left\{ \frac{1}{2} p \left(x + \frac{1}{x} \right) \right\} . Sin \left\{ \frac{1}{2} p \left(x - \frac{1}{x} \right) \right\} \frac{dx}{1-x^2} = -\frac{1}{4} \pi\, Sin\, p$ (VIII, 687).

16) $\int Sin \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{\{(1+x) - i(1-x)\}^{-a} - \{(1+x) + i(1-x)\}^{-a}}{2i} \left(x + \frac{1}{x} \right) x^{\frac{1}{2}a-1} dx =$

$= \frac{\pi}{\Gamma(\frac{1}{2}a)} \frac{e^{-2p}}{2^{\frac{1}{2}a+1}} p^{\frac{1}{2}a-1}$ (VIII, 446).

17) $\int Cos \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{\{(1+x) - i(1-x)\}^{-a} + \{(1+x) + i(1-x)\}^{-a}}{2} \left(x + \frac{1}{x} \right) x^{\frac{1}{2}a-1} dx =$

$= \frac{-\pi}{\Gamma(\frac{1}{2}a)} \frac{e^{-2p}}{2^{\frac{1}{2}a+1}} p^{\frac{1}{2}a-1}$ (VIII, 445).

18) $\int Sin \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{1-x}{x} \frac{dx}{\sqrt{x}} = e^{-2p} \sqrt{\frac{\pi}{2p}} =$ 19) $-\int Cos \left\{ p \left(x - \frac{1}{x} \right) \right\} \frac{1+x}{x} \frac{dx}{\sqrt{x}}$ (VIII, 446).

20) $\int \frac{x\, dx}{Cos\, rx\, .\, Cos \{r(1-x)\}} = \frac{1}{r} Cosec\, r\, .\, l\, Sec\, r \left[r < \frac{1}{2}\pi \right]$ (VIII, 338*).

21) $\int \frac{Sin \{r(2x-1)\}\, .\, x^2\, dx}{Cos^2 rx\, .\, Cos^2 \{r(1-x)\}} = \frac{1}{r} Sec\, r + \frac{2}{r^2} Cosec\, r\, .\, l\, Cos\, r \left[r < \frac{1}{2}\pi \right]$ V. T. 149, N. 20.

F. Alg. rat. ent.; Circ. Dir. | TABLE 150. | Lim. 0 et ∞.

1) $\int Sin\, qx\, .\, x^{p-1}\, dx = \frac{1}{q^p} \Gamma(p)\, Sin \frac{1}{2} p\pi \, [p^2 < 1]$ (VIII, 442).

2) $\int Cos\, qx\, .\, x^{p-1}\, dx = \frac{1}{q^p} \Gamma(p)\, Cos \frac{1}{2} p\pi \, [p^2 < 1]$ (VIII, 442).

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3) $\int Sin\left(\frac{1}{2}p\pi - qx\right).x^{p-1}dx = 0\ [p^2 < 1]$ (VIII, 520).

4) $\int Sin(qx^2).Sin\,2px.x\,dx = \frac{p}{2q}\sqrt{\frac{\pi}{2q}}.\left(Cos\frac{p^2}{q} + Sin\frac{p^2}{q}\right)$ (VIII, 443).

5) $\int Sin(qx^2).Cos\,2px.x\,dx = 0 =$ 6) $\int Cos(qx^2).Cos\,2px.x\,dx$ V. T. 70, N. 11, 12.

7) $\int Cos(qx^2).Sin\,2px.x\,dx = \frac{p}{2q}\sqrt{\frac{\pi}{2q}}.\left(Sin\frac{p^2}{q} - Cos\frac{p^2}{q}\right)$ (VIII, 443).

8) $\int Cos\{2\sqrt{rx}\}.x^{p-1}(1-x)^{q-1}\,dx = \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}\sum_0^\infty \frac{(-1)^n}{1^{2n/1}}\,\frac{p^{n/1}}{(p+q)^{n/1}}(4r)^n$ (VIII, 514).

9) $\int \frac{Sin\,x.x\,dx}{\sqrt{1-2p\,Cos\,x+p^2}} = \frac{1+p}{p}\pi + 2\frac{1-p^2}{p}F'(p) - \frac{4}{p}E'(p)\ [p<1]$ (IV, 341*).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. à 1 ou 2 fact. mon. TABLE 151. Lim. 0 et ∞.

1) $\int Sin\,px\frac{dx}{x} = \frac{1}{2}\pi\ [p>0], = 0\ [p=0], = -\frac{1}{2}\pi\ [p<0]$ (VIII, 471).

2) $\int Cos\,px\frac{dx}{x} = \infty$ (IV, 260) $=$ 3) $\int Sin^{2a}px\frac{dx}{x}$ (E. O. A.).

4) $\int Sin^{2a+1}x\frac{dx}{x} = \frac{1}{2}\pi\frac{1^{a/2}}{2^{a/2}}$ (IV, 269). 5) $\int Tg\,px\frac{dx}{x} = \frac{1}{2}\pi$ (VIII, 385).

6) $\int Sin(p\,Tg\,x)\frac{dx}{x} = \frac{\pi}{2}(1-e^{-p})$ (VIII, 388). 7) $\int Sin\,qx.Sin\,px\frac{dx}{x} = \frac{1}{4}l\left(\frac{q+p}{q-p}\right)^2$ (E. O. A.).

8) $\int Sin\,qx.Cos\,px\frac{dx}{x} = \frac{1}{2}\pi\ [q>p], = 0\ [q<p], = \frac{1}{4}\pi\ [q=p]$ (VIII, 333).

9) $\int Sin\,qx.Cos^2px\frac{dx}{x} = \frac{1}{2}\pi\ [q>2p], = \frac{3}{8}\pi\ [q=2p], = \frac{1}{4}\pi\ [q<2p]$ (IV, 270).

10) $\int Sin^2qx.Sin\,px\frac{dx}{x} = \frac{1}{4}\pi\ [p<2q], = \frac{1}{8}\pi\ [p=2q], = 0\ [p>2q]$ (E. O. A.).

11) $\int Sin^2qx.Sin^2px\frac{dx}{x} = \infty$ (E. O. A.). 12) $\int Sin^2qx.Cos\,px\frac{dx}{x} = \frac{1}{8}l\frac{(p-4q^2)^2}{p^4}$ (E. O. A.).

13) $\int Sin^2 qx . Cos^3 px \frac{dx}{x} = \frac{1}{16} l \frac{(2q+p)^3 (p-2q)^3 (2q+3p)(3p-2q)}{9p^8} \left[\begin{matrix} p > 2q, \\ \text{ou } 3p < 2q \end{matrix}\right], =$

$= \frac{1}{16} l \frac{(2q+p)^3 (2q-p)^3 (2q+3p)(3p-2q)}{9p^8} [3p > 2q > p]$ (IV, 271).

14) $\int Sin^3 qx . Sin^2 px \frac{dx}{x} = \frac{1}{8}\pi [2p > 3q], = \frac{5}{32}\pi [2p = 3q], = \frac{3}{16}\pi [3q > 2p > q], =$

$= \frac{3}{32}\pi [2p = q], = 0 [2p < q]$ (E. O. A.).

15) $\int Sin^3 qx . Cos px \frac{dx}{x} = 0 [p < 3q], = -\frac{1}{16}\pi [p = 3q], = -\frac{1}{8}\pi [3q > p > q], =$

$= \frac{1}{16}\pi [p = q], = \frac{\pi}{4} [q > p]$ (E. O. A.).

16) $\int (1 - 2p\, Cos 2x + p^2)^a Sin x \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \binom{a}{n}^2 p^{2n} =$ 17) $\int (1 - 2p\, Cos 2x + p^2)^a Tg x \frac{dx}{x}$

18) $\int (1 - 2p\, Cos 4x + p^2)^a Tg x \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \binom{a}{n}^2 p^{2n}$

Sur 16) à 18) voyez VIII, 386.

19) $\int Sin(p Tg x) . Cos x \frac{dx}{x} = \frac{\pi}{2}(1 - e^{-p})$ (VIII, 388).

20) $\int Cos(p Tg x) . Sin x \frac{dx}{x} = \frac{\pi}{2} e^{-p} =$ 21) $\int Cos(p Tg x) . Tg x \frac{dx}{x}$ (VIII, 387).

22) $\int Cos(p Tg 2x) . Tg x \frac{dx}{x} = \frac{\pi}{2} e^{-p}$ (VIII, 387).

23) $\int Cos(p Tg x) . Sin^3 x \frac{dx}{x} = \frac{1-p}{4} \pi e^{-p}$ (VIII, 388).

24) $\int Sin^{2a+1} x . Cos^{2b} x \frac{dx}{x} = \frac{\pi}{2} \frac{1^{a/2}\, 1^{b/2}}{2^{a+b/2}} =$ 25) $\int Sin^{2a+1} x . Cos^{2b-1} x \frac{dx}{x}$ (VIII, 385).

26) $\int Cos^s rx . Tg tx \frac{dx}{x} = \frac{\pi}{2}$ Malmsten, N. Act. Ups. 2, 171.

27) $\int Sin^2 2srx . Tg rx \frac{dx}{x} = \frac{\pi}{4}$ (H, 28). 28) $\int Sin^2 srx . Cot rx \frac{dx}{x} = \frac{\pi}{4}(2s - 1)$ (H, 27).

1) $\int Sin\, q x \,.\, Sin\, r x \,.\, Sin\, p x \frac{dx}{x} = 0\, [p < r - q], = \frac{1}{8}\pi\, [p = r - q], = \frac{1}{4}\pi\, [r - q < p < r + q], =$

$= \frac{1}{8}\pi\, [p = q + r], = 0\, [r + q < p < \infty], [p < q < r]$ (E. O. A.).

2) $\int Sin^2 q x . Sin\, r x . Sin\, p x \frac{dx}{x} = \frac{1}{8}\, l \left(\frac{r+p}{r-p}\right)^2 + \frac{1}{8}\, l \frac{(2q-r+p)(2q+r-p)}{(2q+r+p)(2q-r-p)}$ (E. O. A.).

3) $\int Sin^2 q x . Sin^2 r x . Sin\, p x \frac{dx}{x} = \frac{1}{8}\pi\, [2q > 2r + p > 2p], = \frac{5}{16}\pi\, [2q - p = 2r > p], =$

$= \frac{3}{16}\pi\, [2r > p > 2(q - r)], = \frac{1}{16}\pi\, [2r = p < q], = \frac{3}{32}\pi\, [2r = p = q], =$

$= \frac{1}{8}\pi\, [2q > 2r = p > q], = \frac{1}{16}\pi\, [2r = p = 2q], = 0\, [2q > p + 2r > 4r], =$

$= \frac{1}{32}\pi\, [2q = 2r + p < 2p], = \frac{1}{16}\pi\, [2r + p > 2q > p > 2r], =$

$= 0\, [2r < p = 2q < 2r + p], = -\frac{1}{16}\pi\, [2r < p, 2q < p, 2q < 2r + p], =$

$= -\frac{1}{32}\pi\, [3q = p - 2r], = 0\, [p > 2q < p - 2r]$ (E. O. A.).

4) $\int Sin^{2a-1} 2x . Cos^{2b} 2x . Cos^2 x \frac{dx}{x} = \frac{\pi}{4}\, \frac{1^{a/2}\, 1^{b/2}}{2^{a+b/2}}$ (VIII, 385).

5) $\int Cos^{2a} x . Cos\, 2bx . Sin\, x \frac{dx}{x} = \frac{\pi}{2^{2a+1}}\, \frac{1^{2a/1}}{1^{a+b/1}\, 1^{a-b/1}} =$ 6) $\int Cos^{2a-1} x . Cos\, 2bx . Sin\, x \frac{dx}{x}$

7) $\int Cos^{2a} 2x . Cos\, 4bx . Tg\, x \frac{dx}{x} = \frac{\pi}{2^{2a+1}}\, \frac{1^{2a/1}}{1^{a+b/1}\, 1^{a-b/1}}$ Sur 5) à 7) voyez VIII, 385.

8) $\int Sin(p\, Tg\, x) . Sin\, x . Tg\, x \frac{dx}{x} = \frac{\pi}{2}\, e^{-p} =$ 9) $\int Sin(p\, Tg\, x) . Tg^2 x \frac{dx}{x}$ (VIII, 387).

10) $\int Sin(p\, Tg\, 2x) . Tg\, 2x . Tg\, x \frac{dx}{x} = \frac{\pi}{2}\, e^{-p}$ (VIII, 388).

11) $\int Sin(p\, Tg\, x) . Sin\, x . Cos\, x \frac{dx}{x} = \frac{1+p}{4}\pi\, e^{-p} =$ 12) $\int Sin(p\, Tg\, x) . Sin\, x . Cos^2 x \frac{dx}{x}$ (VIII, 388).

13) $\int Sin(p\, Tg\, 2x) . Cos^2 2x . Tg\, x \frac{dx}{x} = \frac{1+p}{4}\pi\, e^{-p}$ (VIII, 388).

14) $\int Cos(p\, Tg\, 2x) . Sin^3 x . Cos\, x \frac{dx}{x} = \frac{1-p}{16}\pi\, e^{-p} =$ 15) $\frac{1}{4}\int Cos(p\, Tg\, x) . Sin^2 x . Tg\, x \frac{dx}{x}$ (VIII, 388).

16) $\int Sin\,4\,s\,r\,x . Tg\,r\,x . Sin\,x \frac{dx}{x} = -\frac{\pi}{2} =$ 17) $-\int Sin\,\{(2\,s\,r-1)\,x\} . Sin\,2\,s\,r\,x . Tg\,r\,x \frac{dx}{x}$ (H, 28).

18) $\int Sin\,\{(2\,s\,r+1)\,x\} . Sin\,2\,s\,r\,x . Tg\,r\,x \frac{dx}{x} = 0$ (H, 28).

19) $\int Sin^2\,2\,s\,r\,x . Tg\,r\,x . Cos\,x \frac{dx}{x} = \frac{\pi}{4}$ (H, 28).

20) $\int Sin\,2\,s\,r\,x . Cot\,r\,x . Sin\,x \frac{dx}{x} = \frac{\pi}{2}$ (H, 27).

21) $\int Sin\,s\,r\,x . Sin\,\{(s\,r+1)\,x\} . Cot\,r\,x \frac{dx}{x} = \frac{1}{2}\,s\,\pi$ (H, 27).

22) $\int Sin\,s\,r\,x . Sin\,\{(s\,r-1)\,x\} . Cot\,r\,x \frac{dx}{x} = \frac{1}{2}\,(s-1)\,\pi$ (H, 27).

23) $\int Sin^2\,s\,r\,x . Cot\,r\,x . Cos\,x \frac{dx}{x} = \frac{\pi}{4}\,(2\,s-1)$ (H, 27).

F. Alg. rat. fract. à dén. x;
Circ. Dir. en num. à plus. fact. mon. TABLE 153. Lim. 0 et ∞.

1) $\int Cos^s\,r\,x . Cos^{s_1}\,r_1\,x \ldots Sin\,\{(s\,r+s_1\,r_1+\ldots)\,x\} \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}\,(2^{s+s_1+\ldots}-1)$ (H, 11).

2) $\int Cos^s\,r\,x . Cos^{s_1}\,r_1\,x \ldots Sin\,\{(s\,r+s_1\,r_1+\ldots)\,x\} . Cos\,x \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}\,(2^{s+s_1+\ldots}-1)$ (H, 11).

3) $\int Cos^s\,r\,x . Cos^{s_1}\,r_1\,x \ldots Cos\,\{(s\,r+s_1\,r_1+\ldots)\,x\} . Sin\,x \frac{dx}{x} = \frac{\pi}{2^{1+s+s_1+\ldots}}$ (H, 11).

4) $\int Cos^s\,r\,x . Cos^{s_1}\,r_1\,x \ldots Sin\,\{(s\,r+s_1\,r_1+\ldots+1)\,x\} \frac{dx}{x} = \frac{\pi}{2}$ (H, 12).

5) $\int Cos^s\,r\,x . Cos^{s_1}\,r_1\,x \ldots Sin\,\{(s\,r+s_1\,r_1+\ldots-1)\,x\} \frac{dx}{x} = \frac{\pi}{2^{s+s_1+\ldots}}\,(2^{s+s_1+\ldots-1}-1)$ (H, 12).

6) $\int Cos^q\,p\,x . Cos^{q_1}\,p_1\,x \ldots Sin^s\,r\,x . Sin^{s_1}\,r_1\,x \ldots Sin\,\Big\{(s+s_1+\ldots)\,\frac{1}{2}\,\pi - (q\,p+q_1\,p_1+\ldots+$

$+\,s\,r+s_1\,r_1+\ldots)\,x\Big\} \frac{dx}{x} = \frac{-\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

7) $\int Cos^q\,p\,x . Cos^{q_1}\,p_1\,x \ldots Sin^s\,r\,x . Sin^{s_1}\,r_1\,x \ldots Sin\,\Big\{(s+s_1+\ldots)\,\frac{1}{2}\,\pi - (q\,p+q_1\,p_1+\ldots+$

$+\,s\,r+s_1\,r_1+\ldots)\,x\Big\} . Cos\,x \frac{dx}{x} = \frac{-\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

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8) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Cos \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - (qp + q_1 p_1 + \dots + \right.$

$\left. + sr + s_1 r_1 + \dots) x \right\} . Sin x \frac{dx}{x} = \frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 13).

9) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - (qp + q_1 p_1 + \dots + \right.$

$\left. + sr + s_1 r_1 + \dots + 1) x \right\} \frac{dx}{x} = \frac{-\pi}{2^{q+q_1+\dots+s+s_1+\dots}}$ (H, 13).

10) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - (qp + q_1 p_1 + \dots + \right.$

$\left. + sr + s_1 r_1 + \dots - 1) x \right\} \frac{dx}{x} = 0$ (H, 13).

11) $\int Cos^q rx . Cos^{q_1} r_1 x \dots Sin\, tx \frac{dx}{x} = \frac{\pi}{2} =$ 12) $\int Cos^q rx . Cos^{q_1} r_1 x \dots Sin\, tx . Cos x \frac{dx}{x}$

13) $\int Cos^q rx . Cos^{q_1} r_1 \dots Cos\, tx . Sin x \frac{dx}{x} = 0$

Dans 11) à 13) on a $t > sr + s_1 r_1 + \dots$ (H, 24).

14) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - tx \right\} \frac{dx}{x} = 0$

15) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Cos \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - tx \right\} . Sin x \frac{dx}{x} = 0$

16) $\int Cos^q px . Cos^{q_1} p_1 x \dots Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{ (s + s_1 + \dots) \frac{1}{2} \pi - tx \right\} . Cos x \frac{dx}{x} = 0$

Dans 14) à 16) on a $t > qp + q_1 p_1 + \dots + sr + s_1 r_1 + \dots$ (H, 24).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. à forme irrat. TABLE 154. Lim. 0 et ∞.

1) $\int \sqrt[3]{Sin x} \frac{dx}{x} = \sqrt[4]{27} . F'\left(Sin \frac{\pi}{12} \right)$ (VIII, 388).

2) $\int Sin x . \sqrt[3]{Sin^2 x} \frac{dx}{x} = 3 \sqrt[4]{27} . E'\left(Sin \frac{\pi}{12} \right) - \frac{3 + 3\sqrt{3}}{2 \sqrt[4]{3}} F'\left(Sin \frac{\pi}{12} \right) =$ 3) $\int Tg x . \sqrt[3]{Sin^2 x} \frac{dx}{x}$

4) $\int Tg x . \sqrt[3]{Sin^2 2x} \frac{dx}{x} = 3 \sqrt[4]{27} . E'\left(Sin \frac{\pi}{12} \right) - \frac{3 + 3\sqrt{3}}{2 \sqrt[4]{3}} F'\left(Sin \frac{\pi}{12} \right) =$ 5) $\int Sin x . \sqrt[3]{Cos^2 x} \frac{dx}{x}$

6) $\int Tg\,x \,.\, \sqrt[3]{Cos^2 x}\,\frac{dx}{x} = 3\sqrt[4]{27}.\,E'\left(Sin\frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}}\,F'\left(Sin\frac{\pi}{12}\right) =$ 7) $\int Tg\,x.\sqrt[3]{Cos^2 2x}\,\frac{dx}{x}$

Sur 2) à 7) voyez VIII, 388.

8) $\int Sin\,x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = E'(p) =$ 9) $\int Tg\,x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x}$ (VIII, 392).

10) $\int Tg\,x \,.\, \sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = E'(p)$ (VIII, 392*).

11) $\int Sin\,x \,.\, Cos\,x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393).

12) $\int Sin\,x \,.\, Cos^2 x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393).

13) $\int Tg\,x \,.\, Cos^2 2x \,.\, \sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(1+p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393*).

14) $\int Sin^2 x \,.\, Tg\,x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)\,E'(p) + (1-p^2)\,F'(p)\right\}$ (VIII, 392).

15) $\int Sin^3 x \,.\, \sqrt{1-p^2\,Sin^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)\,E'(p) + (1-p^2)\,F'(p)\right\}$ (VIII, 392).

16) $\int Sin^3 x \,.\, Cos^2 x \,.\, \sqrt{1-p^2\,Sin^2 2x}\,\frac{dx}{x} = \frac{1}{12p^2}\left\{(2p^2-1)\,E'(p) + (1-p^2)\,F'(p)\right\}$ (VIII, 392).

17) $\int Sin\,x \,.\, \sqrt{1-p^2\,Sin^2 x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393).

18) $\int Tg\,x \,.\, \sqrt{1-p^2\,Sin^2 x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393).

19) $\int Tg\,x \,.\, \sqrt{1-p^2\,Sin^2 2x}^{\,3}\,\frac{dx}{x} = \frac{1}{3}\left\{2(2-p^2)\,E'(p) - (1-p^2)\,F'(p)\right\}$ (VIII, 393).

20) $\int Sin\,x \,.\, \sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = E'(p) =$ 21) $\int Tg\,x \,.\, \sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x}$ (VIII, 393).

22) $\int Tg\,x \,.\, \sqrt{1-p^2\,Cos^2 2x}\,\frac{dx}{x} = E'(p)$ (VIII, 393*).

23) $\int Sin\,x \,.\, Cos\,x \,.\, \sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)\,E'(p) + (1-p^2)\,F'(p)\right\}$ (VIII, 393).

24) $\int Sin\,x \,.\, Cos^2 x \,.\, \sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x} = \frac{1}{3p^2}\left\{(2p^2-1)\,E'(p) + (1-p^2)\,F'(p)\right\}$ (VIII, 393).

25) $\int Tg\,x\,.\,Cos^2 2x\,.\sqrt{1-p^2\,Cos^2 2x}\,\frac{dx}{x}=\frac{1}{3p^2}\left\{(2p^2-1)\,E'(p)+(1-p^2)\,F'(p)\right\}$ (VIII, 393*).

26) $\int Sin^3 x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x}=\frac{1}{3p^2}\left\{(1+p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

27) $\int Sin^2 x\,.\,Tg\,x\,.\sqrt{1-p^2\,Cos^2 x}\,\frac{dx}{x}=\frac{1}{3p^2}\left\{(1+p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

28) $\int Sin^3 x\,.\,Cos\,x\,.\sqrt{1-p^2\,Cos^2 2x}\,\frac{dx}{x}=\frac{1}{12p^2}\left\{(1+p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

29) $\int Sin\,x\,.\sqrt{1-p^2\,Cos^2 x}^{\,3}\,\frac{dx}{x}=\frac{1}{3}\left\{(4-2p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

30) $\int Tg\,x\,.\sqrt{1-p^2\,Cos^2 x}^{\,3}\,\frac{dx}{x}=\frac{1}{3}\left\{(4-2p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

31) $\int Tg\,x\,.\sqrt{1-p^2\,Cos^2 2x}^{\,3}\,\frac{dx}{x}=\frac{1}{3}\left\{(4-2p^2)\,E'(p)-(1-p^2)\,F'(p)\right\}$ (VIII, 393).

F. Alg. rat. fract. à dén. x; Circ. Dir. en num. polynôme. TABLE 155. Lim. 0 et ∞.

1) $\int\left\{Sin^2 qx-Sin^2 px\right\}\frac{dx}{x}=\frac{1}{2}\,l\frac{q}{p}$ (E. O. A.).

2) $\int\left\{Sin^{2a} qx-Sin^{2a} px\right\}\frac{dx}{x}=\frac{1}{2^{2a}}\,\frac{(a+1)^{a/1}}{1^{a/1}}\,l\frac{q}{p}$ (VIII, 273).

3) $\int\left\{Cos\,qx-Cos\,px\right\}\frac{dx}{x}=l\frac{p}{q}$ (VIII, 337).

4) $\int\left\{Cos^{2a} qx-Cos^{2a} px\right\}\frac{dx}{x}=l\frac{p}{q}\,.\left\{1-\frac{(a+1)^{a/1}}{4^{a/1}}\right\}$ (VIII, 273).

5) $\int\left\{Cos^{2a+1} qx-Cos^{2a+1} px\right\}\frac{dx}{x}=l\frac{p}{q}$ (VIII, 273).

6) $\int\left\{3-4\,Sin^2 qx\right\}Sin^2 qx\,\frac{dx}{x}=\frac{1}{2}\,l\,2$ (IV, 272).

7) $\int\left\{Cos\,\lambda-Cos\,b\lambda.x\right\}Sin\,ax\,\frac{dx}{x}=\frac{1}{2}\,\pi\,(Cos\,\lambda-1)\,[a>b\lambda>0],=\frac{1}{2}\,\pi\,Cos\,\lambda\,[a<b\lambda<\infty]$ (IV, 272).

8) $\int\left\{Cos^a px\,.\,Cos\,apx-Cos^a qx\,.\,Cos\,aqx\right\}\frac{dx}{x}=\left(1-\frac{a}{2^a}\right)l\frac{q}{p}$ (VIII, 273).

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F. Alg. rat. fract. à dén. x; Circ. Dir. en num. polyn.	TABLE 155, suite.	Lim. 0 et ∞.

9) $\int \{ Cos(x^2) - Cos\, x \} \frac{dx}{x} = \frac{1}{2} A$ (VIII, 671).

10) $\int \{ Cos(x^4) - Cos(x^2) \} \frac{dx}{x} = \frac{1}{4} A$ (VIII, 671).

11) $\int \{ Cos(x^4) - Cos\, x \} \frac{dx}{x} = \frac{3}{4} A$ (VIII, 672).

12) $\int \{ Cos(x^{2^a}) - Cos\, x \} \frac{dx}{x} = (1 - 2^{-a}) A$ (VIII, 672).

13) $\int \{ Cos(x^p) - Cos(x^q) \} \frac{dx}{x} = \frac{p-q}{pq} A$ (VIII, 701*).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. à un fact. monôme.	TABLE 156.	Lim. 0 et ∞.

1) $\int Sin^2 qx \frac{dx}{x^2} = \frac{1}{2} q\pi$ (VIII, 365).

2) $\int Sin^3 qx \frac{dx}{x^2} = \frac{3}{4} q\, l3$ (E. O. A.).

3) $\int Sin^4 qx \frac{dx}{x^2} = \frac{1}{4} q\pi$ (E. O. A.).

4) $\int Sin^5 qx \frac{dx}{x^2} = \frac{5}{16} q \{ 3\, l3 - l5 \}$ (E. O. A.).

5) $\int Sin^6 qx \frac{dx}{x^2} = \frac{3}{16} q\pi$ (IV, 273).

6) $\int Sin^{10} qx \frac{dx}{x^2} = \frac{35}{256} q\pi$ (IV, 273).

7) $\int Sin^3 qx \frac{dx}{x^3} = \frac{3}{8} q^2 \pi$ (VIII, 366).

8) $\int Sin^4 qx \frac{dx}{x^3} = q^2\, l2$ (E. O. A.).

9) $\int Sin^5 qx \frac{dx}{x^3} = \frac{5}{32} q^2 \pi$ (E. O. A.).

10) $\int Sin^6 qx \frac{dx}{x^3} = \frac{3}{16} q^2 (8\, l2 - 3\, l3)$ (IV, 273).

11) $\int Sin^4 qx \frac{dx}{x^4} = \frac{1}{3} q^3 \pi$ (E. O. A.).

12) $\int Sin^5 qx \frac{dx}{x^4} = \frac{5}{96} q^3 (25\, l5 - 27\, l3)$ (IV, 273).

13) $\int Sin^5 qx \frac{dx}{x^5} = \frac{115}{384} q^4 \pi$ (IV, 273).

14) $\int Sin^6 qx \frac{dx}{x^5} = \frac{1}{16} q^4 (27\, l3 - 32\, l2)$ (IV, 273).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. à plus. fact. mon.	TABLE 157.	Lim. 0 et ∞.

1) $\int Sin\, qx . Sin\, px \frac{dx}{x^2} = \frac{1}{2} p\pi\ [p \leqq q], = \frac{1}{2} q\pi\ [p \geqq q]$ (VIII, 365).

2) $\int Sin^2 qx . Sin\, px \frac{dx}{x^2} = \frac{2q+p}{8} l (2q+p)^2 - \frac{2q-p}{8} l (2q-p)^2 - \frac{1}{2} p\, lp$ (E. O. A.).

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3) $\int Sin^2 qx . Sin^2 px \frac{dx}{x^2} = \frac{1}{4} p\pi \, [q \geqq p], = \frac{1}{4} q\pi \, [q \leqq p]$ (E. O. A.).

4) $\int Sin^2 qx . Sin^3 px \frac{dx}{x^2} = \frac{2q-3p}{32} l(2q-3p)^2 - \frac{2q+3p}{32} l(2q+3p)^2 + \frac{2q+p}{32} 3 l(2q+p)^2 -$

$- \frac{2q-p}{32} 3 l(2q-p)^2 + \frac{3}{8} p \, lp$ (E. O. A.).

5) $\int Sin^2 qx . Cos px \frac{dx}{x^2} = 0 \, [p \geqq 2q], = \frac{2q-p}{4} \pi \, [p < 2q]$ (E. O. A.).

6) $\int Sin^2 qx . Cos^2 px \frac{dx}{x^2} = \frac{2q-p}{4} \pi \, [q > p], = \frac{1}{4} q\pi \, [q \leqq p]$ V. T. 156, N. 1 et T. 157, N. 3.

7) $\int Sin^3 qx . Cos px \frac{dx}{x^2} = \frac{p+3q}{16} l(p+3q)^2 - \frac{p-3q}{16} l(p-3q)^2 - \frac{p+q}{16} 3 l(p+q)^2 +$

$+ \frac{p-q}{16} 3 l(p-q)^2$ (E. O. A.).

8) $\int Sin qx . Sin rx . Sin px \frac{dx}{x^2} = \frac{q+r+p}{8} l(q+r+p)^2 - \frac{q-r+p}{8} l(q-r+p)^2 -$

$- \frac{q+r-p}{8} l(q+r-p)^2 + \frac{q-r-p}{8} l(q-r-p)^2$ (E. O. A.).

9) $\int Sin^2 qx . Sin rx . Sin px \frac{dx}{x^2} = \frac{1}{2} r\pi \, [2q > p+r = 2r], = \frac{1}{4} q\pi \, [2q \leqq r+p = 2r], =$

$= \frac{1}{4} p\pi \, [2q \geqq r+p > 2p], = \frac{2q-r+p}{8} \pi \, [r+p > 2q > r-p], =$

$= 0 \, [2q \leqq r-p > 0]$ (E. O. A.).

10) $\int Sin^2 qx . Sin^2 rx . Sin px \frac{dx}{x^2} = \frac{2q-2r-p}{32} l(2q-2r-p)^2 - \frac{2q+2r+p}{32} l(2q+2r+p)^2 +$

$+ \frac{2q+2r-p}{32} l(2q+2r-p)^2 - \frac{2q-2r+p}{32} l(2q-2r+p)^2 + \frac{2q+p}{16} l(2q+p)^2 -$

$- \frac{2q-p}{16} l(2q-p)^2 + \frac{2r+p}{16} l(2r+p)^2 - \frac{2r-p}{16} l(2r-p)^2 - \frac{1}{4} p \, lp$ (E. O. A.).

11) $\int Sin^2 srx . Cot rx . Sin x \frac{dx}{x^2} = \frac{\pi}{4}(2s-1)$ (H, 28).

12) $\int Sin^2 2srx . Tg rx . Sin x \frac{dx}{x^2} = \frac{\pi}{4}$ (H, 28).

13) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin \{(sr + s_1 r_1 + \ldots) x\} . Sin x \frac{dx}{x^2} = \frac{\pi}{2^{1+s+s_1+\ldots}} (2^{s+s_1+\ldots} - 1)$ (H, 12).

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14) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{(s+s_1+\ldots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\ldots+sr+s_1r_1+\ldots)x\right\} . Sin x \frac{dx}{x^2} = \frac{-\pi}{2^{1+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 13).

15) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin tx . Sin x \frac{dx}{x^2} = \frac{\pi}{2}$ $[t > sr + s_1 r_1 + \ldots]$ (H, 24).

16) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{(s+s_1+\ldots)\frac{1}{2}\pi - tx\right\} . Sin x \frac{dx}{x^2} = 0$

$[t > qp + q_1p_1 + \ldots + sr + s_1 r_1 + \ldots]$ (H, 24).

17) $\int Sin^2 qx . Sin px \frac{dx}{x^3} = \frac{1}{2} q^2 \pi$ $[p \geqq 2q]$, $= \frac{1}{8}\pi(4pq - p^2)$ $[p \leqq 2q]$ (VIII, 366).

18) $\int Sin^2 qx . Sin^3 px \frac{dx}{x^3} = \frac{3}{16} p^2 \pi$ $[2q > 3p]$, $= \frac{1}{12} q^2 \pi$ $[2q = 3p]$, $= \frac{1}{32}\left\{6p^2 - (3p-2q)^2\right\}\pi$

$[3p > 2q > p]$, $= \frac{1}{4} q^2 \pi$ $[p \geqq 2q]$ (E. O. A.).

19) $\int Sin^3 qx . Cos px \frac{dx}{x^3} = 0$ $[p \geqq 3q]$, $= \frac{1}{16}(3q-p)^2\pi$ $[3q > p > q]$, $= \frac{1}{4}p^2\pi$ $[q = p]$, $=$

$= \frac{1}{8}(3q^2 - p^2)\pi$ $[q > p]$ (E. O. A.).

20) $\int Sin qx . Sin px . Sin rx \frac{dx}{x^3} = \frac{1}{2} pq\pi$ $[r \geqq p+q]$, $= \frac{1}{4}\pi(pq+pr+qr) - \frac{1}{8}\pi(p^2+q^2+r^2)$

$[r < p+q]$; $[p < q < r]$ (VIII, 366).

21) $\int Sin^2 2srx . Tg rx . Sin^2 x \frac{dx}{x^3} = \frac{3}{8}\pi$ (H, 29).

22) $\int Sin^2 srx . Cot rx . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{8}(4s-3)$ (H, 28).

23) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\left\{(sr+s_1r_1+\ldots)x\right\} . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{1+s+s_1+\ldots}}\left\{2^{s+s_1+\ldots} - \frac{1}{4}(s+s_1+\ldots) - 1\right\}$

(H, 12).

24) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{(s+s_1+\ldots)\frac{1}{2}\pi - (qp+q_1p_1+\ldots+sr+\right.$

$\left.+s_1r_1+\ldots)x\right\} . Sin^2 x \frac{dx}{x^3} = \frac{-\pi}{2^{3+q+q_1+\ldots+s+s_1+\ldots}}(4+q+q_1+\ldots-s-s_1-\ldots)$ (H, 14).

25) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\, tx . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{3+s+s_1+\ldots}} \{2^{2+s+s_1+\ldots} - 1\}$ $[t > sr + s_1 r_1 + \ldots]$ (H, 24).

26) $\int Cos^q px . Cos^{q_1} p_1 x \ldots Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{(s + s_1 + \ldots) \frac{1}{2} \pi - tx\right\} . Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\ldots+s_1+s_1+\ldots}} [t > qp + q_1 p_1 + \ldots + sr + s_1 r_1 + \ldots]$ (H, 24).

27) $\int Sin^2 qx . Sin^2 px \frac{dx}{x^4} = \frac{1}{6} p^2 \pi (3q - p)$ $[p \leqq q]$, $= \frac{1}{6} q^2 \pi (3p - q)$ $[p \geqq q]$ (IV, 274).

28) $\int Sin^3 qx . Sin\, px \frac{dx}{x^4} = \frac{1}{2} q^3 \pi$ $[p > 3q]$, $= \frac{1}{48} \pi \{24 q^3 - (3q - p)^3\}$ $[q \leqq p \leqq 3q]$, $=$

$= \frac{1}{48} \pi \{24 pq^2 - (p + q)^3\}$ $[p \leqq q]$ (IV, 274).

F. Alg. rat. fract. à dén. x^a pour a spécial; Circ. Dir. en num. polynôme. TABLE 158. Lim. 0 et ∞.

1) $\int (1 - Cos\, qx) \frac{dx}{x^2} = \frac{1}{2} q \pi$ (IV, 274). 2) $\int (Cos\, qx - Cos\, px) \frac{dx}{x^2} = \frac{1}{2}(p - q) \pi$ V. T. 158, N. 1.

3) $\int (Sin\, x - x\, Cos\, x) \frac{dx}{x^2} = 1$ (IV, 275). 4) $\int (p\, Cos\, qx - rx\, Sin\, qx - p) \frac{dx}{x^2} = (r - pq) \frac{\pi}{2}$ (IV, 275).

5) $\int (Sin\, qx - qx\, Cos\, qx) \frac{dx}{x^3} = \frac{1}{4} q^2 \pi$ (VIII, 580). 6) $\int (x^3 - Sin^3 x) \frac{dx}{x^5} = \frac{13}{32} \pi$ (IV, 275).

7) $\int (1 - Cos^{2a-1} x) \frac{dx}{x^2} = \frac{a\pi}{2^{2a}} \binom{2a}{a} =$ 8) $\int (1 - Cos^{2a} x) \frac{dx}{x^2}$ Stefan, Schl. Z. 7. 357.

F. Alg. rat. fract. à dén. x^a pour a général; Circ. Dir. en num. TABLE 159. Lim. 0 et ∞.

1) $\int Sin\, qx \frac{dx}{x^p} = \frac{\pi}{2\Gamma(p)} q^{p-1} Cosec \frac{1}{2} p \pi$ $[0 < p < 2]$, (VIII, 442) $= \infty$ $[p \geqq 2]$ (IV, 276).

2) $\int Sin^b x \frac{dx}{x^a} = \frac{(-1)^{\frac{1}{2}(a+b)-1}}{2^{b-1} 1^{a-1/1}} \frac{\pi}{2} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b - 2n)^{a-1} \left[\begin{matrix} a \text{ et } b \\ \text{impairs}\end{matrix}\right], = \frac{(-1)^{\frac{1}{2}(a+b)}}{2^{b-1} 1^{a-b/1}} \frac{\pi}{2}$

$\sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b - 2n)^{a-1} \left[\begin{matrix} a \text{ et } b \\ \text{pairs}\end{matrix}\right], = \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^b 1^{a-1/1}} \sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b - 2n)^{a-1}$

$$l(b-2n)\begin{bmatrix} a \text{ impair,} \\ b \text{ pair} \end{bmatrix}, = \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^b\, 1^{a-1/1}} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1}\, l(b-2n) \begin{bmatrix} a \text{ pair,} \\ b \text{ impair} \end{bmatrix}, =$$

$$= \frac{(-1)^{\frac{1}{2}(b-1)}\pi}{2^b\,\Gamma(a)\, Sin\, \frac{1}{2} a\pi} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [0<a<1, b \text{ imp.}], = \infty [0<a<1, b \text{ pair}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c-1)}\pi}{2^b\,\Gamma(a)\, Sin\, \frac{1}{2} r\pi} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a=c+r, 0<r<1, b \text{ et } c+1 \text{ impairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c-1)}\pi}{2^b\,\Gamma(a)\, Sin\, \frac{1}{2} r\pi} \sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a=c+r, 0<r<1, b \text{ et } c+1 \text{ pairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c)}\pi}{2^b\,\Gamma(a)\, Cos\, \frac{1}{2} r\pi} \sum_0^{\frac{1}{2}(b-1)} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a=c+r, 0<r<1, b \text{ et } c \text{ impairs}], =$$

$$= \frac{(-1)^{\frac{1}{2}(b+c)}\pi}{2^b\,\Gamma(a)\, Cos\, \frac{1}{2} r\pi} \sum_0^{\frac{1}{2}b-1} (-1)^n \binom{b}{n} (b-2n)^{a-1} [a=c+r, 0<r<1, b \text{ et } c \text{ pairs}]$$

Schlömilch, Schl. Z. 5, 286.

3) $\int Cos\, qx \frac{dx}{x^p} = \frac{\pi}{2\Gamma(p)} q^{p-1}\, Sec\, \frac{1}{2} p\pi\, [p^2<1]$, (VIII, 442) $= \infty\, [p^2 \geqq 1]$ (IV, 277).

4) $\int Cos\left(\frac{1}{2} a\pi + qx\right) \frac{dx}{x^{p+1}} = 0$ (IV, 278).

5) $\int Cos\left(\frac{1}{2} a\pi - qx\right) \frac{dx}{x^{p+1}} = \frac{\pi q^p}{\Gamma(p+1)}$ (IV, 278).

6) $\int Cos\left(\frac{1}{2} p\pi + qx\right) \frac{dx}{x^{p+1}} = -\frac{1}{p} q^p\, \Gamma(1-p)$ Lobatto, N. V. Amst. 6, 1.

7) $\int Sin\, qx . Sin\, x \frac{dx}{x^p} = \frac{\pi}{4\Gamma(p)} Sec\, \frac{1}{2} p\pi . \{(1-q)^{p-1} - (1+q)^{p-1}\}\, [q<1], = \frac{\pi}{4\Gamma(p)} Sec\, \frac{1}{2} p\pi .$
$\{(q-1)^{p-1} - (1+q)^{p-1}\}\, [q>1]$ (IV, 278).

8) $\int Cos\, qx . Sin\, x \frac{dx}{x^p} = \frac{\pi}{4\Gamma(p)} Cosec\, \frac{1}{2} p\pi . \{(1-q)^{p-1} + (1+q)^{p-1}\}\, [q<1], = \frac{\pi}{4\Gamma(p)} Cosec\, \frac{1}{2} p\pi .$
$\{(q+1)^{p-1} - (q-1)^{p-1}\}\, [q>1]$ (IV, 278).

9) $\int Sin^p x\, Sin . \{(p-1)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a-1}{2}} \frac{\pi}{2^p\, 1^{a-1/1}}$

10) $\int Sin^p x . Cos\{(p-1)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a}{2}} \frac{\pi}{2^p\, 1^{a-1/1}}$

11) $\int Sin^p x . Cos\{(p-2)x\} \frac{dx}{x^a} = (-1)^{\frac{p-a}{2}} \frac{\pi}{2^{p-a+1}\, 1^{a-1/1}}$

Sur 9) à 11) voyez Bronwin, L. & E. Phil. Mag. 24, 491.

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12) $\int \left(\frac{Sin\,x}{x}\right)^a \frac{Sin\,a\,x}{x}\,dx = \frac{1}{2}\pi$ (IV, 278).

13) $\int \left(\frac{Sin\,x}{x}\right)^a \frac{Sin\,a\,q\,x}{x}\,dx = \frac{1}{2}\pi\left\{1 - \frac{1}{2^{a-1}\,1^{a/1}}\sum_0^{\frac{1}{2}(1-q)a}(-1)^n\frac{a^{n|-1}}{1^{n/1}}(a-a\,q-2\,n)^a\right\}$ (IV, 278).

14) $\int \left(\frac{Sin\,x}{x}\right)^a . Cos\,b\,x\,dx = 0\ [b \geqq a]$ (IV, 278).

15) $\int \left(\frac{Sin\,x}{x}\right)^a . Cos\,a\,q\,x\,dx = \frac{\pi}{2^{a-1}}\sum_0^{\frac{1}{2}(1\pm a)q}(-1)^n\frac{a^{n|-1}}{1^{a-1/1}\,1^{n/1}}(a \pm a\,q - 2\,n)^{a-1}$ (IV, 278).

16) $\int \left(\frac{Sin\,x}{x}\right)^a . Cos\,q\,x\,dx = \frac{\pi}{1^{a/1}\,2^a}\sum_0^\infty(-1)^n\binom{a}{n}(q+a-2\,n)^{a-1}$ (IV, 278).

17) $\int Sin^a x . Sin\,2\,q\,x\,\frac{dx}{x^{a+1}} = (-1)^a\frac{\pi}{2^{a+1}}\,[2\,q < a], = 0\left[\begin{matrix}2\,q > a,\\ q \text{ entier}\end{matrix}\right]$ (IV, 279).

18) $\int Sin^a x . Sin\,2\,q\,x\,\frac{dx}{x^{b+1}} = \frac{\pi}{2^{a+1}\,1^{b/1}}\,Sec\left(\frac{a+b}{2}\pi\right).\Delta^a.(2\,q-a)^b[2\,q<a], = \frac{\pi}{2^{a+1}\,1^{b/1}}\,Sec\left(\frac{a+b}{2}\pi\right).$

$\left\{\sum_0^\infty(-1)^n\binom{a}{n}(a+2\,q-2\,n)^b - \sum_0^\infty(-1)^n\binom{a}{n}(a-2\,q-2\,n)^b\right\}[2\,q>a], =$

$= \frac{(-1)^{\frac{1}{2}(a+b-1)}}{2^a\,1^{b/1}}\,\Delta^a.\{(2\,q-a)^b\,l(2\,q-a)\}\ [a+b \text{ impair}]$ (IV, 279).

19) $\int Sin^a x . Cos\,2\,q\,x\,\frac{dx}{x^{b+1}} = \frac{-\pi}{2^{b+1}\,1^{b/1}}\,Cosec\left(\frac{a+b}{2}\pi\right).\Delta^a.(2q-a)^b[2q>a], = \frac{-\pi}{2^{a+1}\,1^{b/1}}\,Cosec\left(\frac{a+b}{2}\pi\right).$

$\left\{\sum_0^\infty(-1)^n\binom{a}{n}(a+2\,q-2\,n)^b + \sum_0^\infty(-1)^n\binom{a}{n}(a-2\,q-2\,n)^b\right\}[2\,q<a], =$

$= \frac{(-1)^{\frac{1}{2}(a+b)}}{2^a\,1^{b/1}}\,\Delta.\{(2\,q-a)^b\,l(2\,q-a)\}\ [a+b \text{ pair}]$ (IV, 279, 280).

20) $\int \left(\frac{Sin\,x}{x}\right)^{a-1} . Sin\,a\,x . Cos\,x\,\frac{dx}{x} = \frac{1}{2}\pi$ (IV, 280).

21) $\int \left(\frac{Sin\,x}{x}\right)^{2a} . Sin\,2\,a\,x . Tg\,x\,\frac{dx}{x} = (-1)^{a-1}\frac{2^{2a}-1}{1^{2a/1}}\,\pi\,2^{a-1}\,B_{2a-1}$

Hamilton, L. & E. Phil. Mag. 23, 360.

22) $\int Sin\{(2\,q+a)\,x\}.Sin^a x\,\frac{dx}{x^{b+1}} = \frac{2^{b-a-1}}{1^{b/1}}\,\pi\,Sec\left(\frac{a+b}{2}\pi\right).\Delta^a.q^b[a>b]$ (IV, 280).

23) $\int Cos\{(2\,q+a)\,x\}.Sin^a x\,\frac{dx}{x^{b+1}} = -\frac{2^{b-a-1}\pi}{1^{b/1}}\,Cosec\left(\frac{a+b}{2}\pi\right).\Delta^a.q^b\ [a>b]$ (IV, 280).

24) $\int Sin\left\{(2\,p+a)\,x + \frac{1}{2}a\,\pi\right\}.Sin^a x\,\frac{dx}{x^{q+1}} = \frac{\pi}{2^{a-q+1}\,\Gamma(q+1)}\,Cosec\left(\frac{q+1}{2}\pi\right).\Delta^a.p^q$ (IV, 280).

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25) $\int Cos\left\{(2p+a)x+\frac{1}{2}a\pi\right\}.Sin^a x\frac{dx}{x^{q+1}}=\frac{\pi}{2^{a-q+1}\Gamma(q+1)}Sec\left(\frac{q+1}{2}\pi\right).\Delta^a.p^q$ (IV, 280).

26) $\int Cos\left\{2qx+(b-a+1)\frac{\pi}{2}\right\}.Sin^a x\frac{dx}{x^{b+1}}=\frac{\pi}{2^a 1^{b/1}}\sum_0^\infty(-1)^n\binom{a}{n}(a-2q-2n)^b\ [a^2>4q^2]$ (IV, 280).

27) $\int\left\{Cos\left[\frac{1}{2}(r+1)\pi+2(p+q)x\right]+Cos\left[\frac{1}{2}(r+1)\pi+2(p-q)x\right]\right\}\frac{dx}{x^{r+1}}=0\ [p>q],=$
$=2^r\pi\frac{(q-p)^r}{\Gamma(r+1)}\ [p<q]$ (IV, 279).

28) $\int\left(\frac{Sin\,x}{x}\right)^a.Cos(bx\sqrt{a})\,dx=\frac{\pi}{2^a 1^{a/1}}\sum_0^\infty(-1)^n\binom{a}{n}(a+b\sqrt{a}-2n)^{a-1}$ (IV, 280).

F. Alg. rat. fract. à dén. q^a+x^a; Circ. Dir. en num. à un fact. TABLE 160. Lim. 0 et ∞.

1) $\int Sin\,px\frac{dx}{q+x}=Sin\,pq.Ci(pq)+Cos\,pq.\left\{\frac{1}{2}\pi-Si(pq)\right\}$ (VIII, 289).

2) $\int Cos\,px\frac{dx}{q+x}=-Cos\,pq.Ci(pq)+Sin\,pq.\left\{\frac{1}{2}\pi-Si(pq)\right\}$ (VIII, 289).

3) $\int Sin\,px\frac{dx}{q^2+x^2}=\frac{1}{2q}\left\{e^{-pq}Ei(pq)-e^{pq}Ei(-pq)\right\}$ (VIII, 448).

4) $\int Sin\,px\frac{x\,dx}{q^2+x^2}=\frac{1}{2}\pi e^{-pq}$ (VIII, 519). 5) $\int Cos\,px\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-pq}$ (VIII, 519).

6) $\int Cos\,px\frac{x\,dx}{q^2+x^2}=-\frac{1}{2}\left\{e^{pq}Ei(-pq)+e^{-pq}Ei(pq)\right\}$ (VIII, 448).

7) $\int Cos\,px\frac{x^2\,dx}{q^2+x^2}=\infty$ (IV, 284*) $=$ 8) $\int Tg\,px\frac{x\,dx}{q^2+x^2}$ (VIII, 564).

9) $\int Cot\,px\frac{x\,dx}{q^2+x^2}=\infty$ (VIII, 564). 10) $\int Sin^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(1-e^{-2pq})$ (VIII, 333).

11) $\int Cos^2 px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(1+e^{-2pq})$ (VIII, 333).

12) $\int Sin^{2a}x\frac{dx}{q^2+x^2}=\frac{(-1)^a}{2^{2a+1}}\frac{\pi}{q}\left\{(e^q-e^{-q})^{2a}-e^{2aq}\sum_0^a(-1)^n\binom{2a}{n}e^{-2nq}+\right.$
$\left.+e^{-2aq}\sum_0^a(-1)^n\binom{2a}{n}e^{nq}\right\}$ (V, 40).

13) $\int Sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \left\{ e^{-2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq} Ei\{2q(a-n)\} + \right.$

$\left. + e^{2aq} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei\{2q(n-a)\} \right\}$ (V, 49).

14) $\int Sin^{2a+1} x \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \left\{ e^{(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{q(2n-2a-1)\} + \right.$

$\left. + e^{-(2a+1)q} \sum_0^{2a+1} (-1)^{n-1} \binom{2a+1}{n} e^{2nq} Ei\{q(2a+1-2n)\} \right\}$ (V, 38).

15) $\int Sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} e^{-(2a+1)q} \left\{ (1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1} - \right.$

$\left. - 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \right\}$ (V, 52).

16) $\int Cos^{2a} x \frac{dx}{q^2+x^2} = \frac{1}{2^{2a+1}} \frac{\pi}{q} \binom{2a}{a} + 2^{-2a} \frac{\pi}{q} \sum_1^a \binom{2a}{n+a} e^{-2nq}$ (V, 22).

17) $\int Cos^{2a-1} x \frac{dx}{q^2+x^2} = \frac{1}{2^{2a-1}} \frac{\pi}{q} \sum_1^{a-1} \binom{2a-1}{n+a} e^{-(2n+1)q}$ (V, 22).

18) $\int Cos^a x \frac{x\,dx}{q^2+x^2} = \frac{-1}{2^{a+1}} e^{-aq} \sum_0^a \binom{a}{n} e^{2nq} Ei\{q(a-2n)\} - \frac{1}{2^{a+1}} e^{aq} \sum_0^a \binom{a}{n} e^{-2nq} Ei\{q(2n-a)\}$

(V, 26).

19) $\int Tg^r px \frac{dx}{q^2+x^2} = \frac{\pi}{2q} Sec \frac{1}{2} r\pi . \left(\frac{e^{pq}-e^{-pq}}{e^{pq}+e^{-pq}}\right)^r$ $(r^2 < 1)$ Cauchy, C. R. 23. 275.

20) $\int Sin\left(\frac{1}{2} r\pi - px\right) \frac{x^{r-1}\,dx}{q^2+x^2} = \frac{1}{2} \pi q^{r-2} e^{-pq}$ $[r<2]$ (VIII, 676).

21) $\int Cos\left(\frac{1}{2} r\pi - px\right) \frac{x^r\,dx}{q^2+x^2} = \frac{1}{2} \pi q^{r-1} e^{-pq}$ $[r^2<1]$ (VIII, 676*).

22) $\int Sin(p\,Tg^2 x) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} \left(e^{-p \frac{e^q - e^{-q}}{e^q+e^{-q}}} - e^{-p} \right)$ (VIII, 421).

23) $\int Sin\,2px \frac{x\,dx}{q^4+x^4} = \frac{\pi}{2q^2} e^{-pq\sqrt{2}} Sin(pq\sqrt{2})$ (VIII, 527).

24) $\int Sin\,2px \frac{x^3\,dx}{q^4+x^4} = \frac{\pi}{2} e^{-pq\sqrt{2}} Cos(pq\sqrt{2})$ (VIII, 527).

25) $\int Cos\,2px \frac{dx}{q^4+x^4} = \frac{\pi\sqrt{2}}{4q^3} e^{-pq\sqrt{2}} \{Cos(pq\sqrt{2}) + Sin(pq\sqrt{2})\}$ (VIII, 527).

26) $\int Cos\, 2px \frac{x^2\, dx}{q^4 + x^4} = \frac{\pi \sqrt{2}}{4q} e^{-pq\sqrt{2}} \{ Cos(pq\sqrt{2}) - Sin(pq\sqrt{2})\}$ (VIII, 527).

27) $\int Sin\, px \frac{x\, dx}{1 + x^{2a}} = \frac{\pi}{2a} e^{-p} - \frac{\pi}{a} \sum_1^{\frac{1}{2}(a-1)} e^{-p\, Cos \frac{n\pi}{a}} Cos \left\{\frac{2n\pi}{a} - p\, Sin \frac{n\pi}{a}\right\} \left[\begin{matrix} a \\ \text{impair}\end{matrix}\right], =$

$= \frac{\pi}{a} \sum_1^{\frac{1}{2}a-1} e^{-p\, Cos \left(\frac{2n+1}{2a}\pi\right)} Cos \left\{\frac{2n+1}{a}\pi - p\, Sin\left(\frac{2n+1}{2a}\right)\pi\right\} \left[\begin{matrix} a \\ \text{pair}\end{matrix}\right]$ (IV, 288*).

28) $\int Cos\, px \frac{dx}{1 + x^{2a}} = \frac{\pi}{2a} e^{-p} - \frac{\pi}{a} \sum_1^{\frac{1}{2}(a-1)} e^{-p\, Cos \frac{n\pi}{a}} Cos \left\{\frac{n\pi}{a} - p\, Sin \frac{n\pi}{a}\right\} \left[\begin{matrix} a \\ \text{impair}\end{matrix}\right], =$

$= \frac{\pi}{a} \sum_1^{\frac{1}{2}a-1} e^{-p\, Cos \left(\frac{2n+1}{2a}\pi\right)} Cos \left\{\frac{2n+1}{2a}\pi - p\, Sin\left(\frac{2n+1}{2a}\pi\right)\right\} \left[\begin{matrix} a \\ \text{pair}\end{matrix}\right]$ (IV, 288).

29) $\int Cos\, px \,.\, x^{b-1} \frac{dx}{q^a + x^a} = \frac{\pi}{a q^{a-b}} \sum_1^{\frac{1}{2}a} e^{-pq\, Sin \left(\frac{2n-1}{a}\pi\right)} Sin \left\{\frac{2n-1}{a} b\pi + pq\, Cos\left(\frac{2n-1}{a}\pi\right)\right\}$

[a pair, b impair, $b < a + 1$], $= 0 \left[\begin{matrix} b \\ \text{pair}\end{matrix}\right]$ (IV, 288).

30) $\int Sin(p\pi - r^a x^a) \frac{dx}{q^2 + x^{2a}} = \frac{1}{2} e^{-qr^a} q^{2(p-1)} p\pi (1 + Cot\, p\pi)$ (IV, 288).

F. Alg. rat. fract. à dén. $q^a - x^a$; Circ. Dir. en num. à un facteur. TABLE 161. Lim. 0 et ∞.

1) $\int Sin\, px \frac{dx}{q - x} = Sin\, pq \,.\, Ci(pq) - Cos\, pq \,.\left\{\frac{1}{2}\pi + Si(pq)\right\}$ (VIII, 327).

2) $\int Cos\, px \frac{dx}{q - x} = Cos\, pq \,.\, Ci(pq) + Sin\, pq \,.\left\{\frac{1}{2}\pi + Si(pq)\right\}$ (VIII, 327).

3) $\int Sin\, px \frac{dx}{q^2 - x^2} = \frac{1}{q} \{ Ci(pq) \,.\, Sin\, pq - Si(pq) \,.\, Cos\, pq\}$ (VIII, 327).

4) $\int Sin\, px \frac{x\, dx}{q^2 - x^2} = -\frac{1}{4}\pi\, Cos\, pq$ (VIII, 326). 2

5) $\int Cos\, px \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Sin\, pq$ (VIII, 326).

6) $\int Cos\, px \frac{x\, dx}{q^2 - x^2} = Ci(pq) \,.\, Cos\, pq + Si(pq) \,.\, Sin\, pq$ (VIII, 327).

7) $\int Tg\, px \frac{x\, dx}{q^2 - x^2} = \infty =$ 8) $\int Cot\, px \frac{x\, dx}{q^2 - x^2}$ (VIII, 564).

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9) $\int Cosec\, p x \frac{x\, dx}{q^2 - x^2} = \infty$ (VIII, 564).

10) $\int Cos^2 p x \frac{dx}{q^2 - x^2} = \frac{\pi}{4q} Sin\, 2pq$ (IV, 286).

11) $\int Sin\left(\frac{1}{2} r\pi - px\right) \frac{x^{r-1}\, dx}{q^2 - x^2} = -\frac{1}{2}\pi q^{r-2} Cos\left(\frac{1}{2} r\pi - pq\right)$ (VIII, 676).

12) $\int Sin\, px \frac{dx}{q^4 - x^4} = \frac{1}{4q^3}\{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + e^{-pq}\, Ei(pq) - e^{pq}\, Ei(-pq)\}$
V. T. 160, N. 3 et T. 161, N. 3.

13) $\int Sin\, px \frac{x\, dx}{q^4 - x^4} = \frac{\pi}{4q^2}(e^{-pq} - Cos\, pq)$ V. T. 160, N. 4 et T. 161, N. 4.

14) $\int Sin\, px \frac{x^2\, dx}{q^4 - x^4} = \frac{1}{4q}\{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq - e^{-pq}\, Ei(pq) + e^{pq}\, Ei(-pq)\}$
V. T. 160, N. 3 et T. 161, N. 3.

15) $\int Sin\, px \frac{x^3\, dx}{q^4 - x^4} = -\frac{\pi}{4}(e^{-pq} + Cos\, pq)$ V. T. 160, N. 4 et T. 161, N. 4.

16) $\int Cos\, px \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3}(e^{-pq} + Sin\, pq)$ V. T. 160, N. 5 et T. 161, N. 5.

17) $\int Cos\, px \frac{x\, dx}{q^4 - x^4} = \frac{1}{4q^2}\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq - e^{-pq}\, Ei(pq) - e^{pq}\, Ei(-pq)\}$
V. T. 160, N. 6 et T. 161, N. 6.

18) $\int Cos\, px \frac{x^2\, dx}{q^4 - x^4} = \frac{\pi}{4q}(Sin\, pq - e^{-pq})$ V. T. 160, N. 5 et T. 161, N. 5.

19) $\int Cos\, px \frac{x^3\, dx}{q^4 - x^4} = \frac{1}{4}\{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq + e^{-pq}\, Ei(pq) + e^{pq}\, Ei(-pq)\}$
V. T. 160, N. 6 et T. 161, N. 6.

20) $\int Cos\, px . x^{b-1} \frac{dx}{q^a - x^a} = \frac{\pi}{a q^{a-b}} \sum_0^{\frac{1}{2}a-1} e^{-pq\, Sin\frac{2n\pi}{a}} Sin\left(\frac{2nb\pi}{a} + pq\, Cos\frac{2n\pi}{a}\right)$ (IV, 288).

21) $\int \{Cos(px^2) - Sin(px^2)\} \frac{dx}{1 - x^4} = \frac{1}{4}\pi(Sin\, p + Cos\, p)$ (IV, 288).

F. Alg. rat. fract. à dén. $q^2 + x^2$; Circ. Dir. en num. à un fact. $Sin^a\, x$ et un autre. TABLE 162. Lim. 0 et ∞.

1) $\int Sin\, px . Sin\, rx \frac{dx}{q^2 + x^2} = \frac{\pi}{4q} e^{-pq}(e^{rq} - e^{-rq})\ [0 < r \leqq p]$ (VIII, 333).

2) $\int Sin\, px . Sin\, rx \frac{x\, dx}{q^2 + x^2} = \frac{1}{4} e^{pq}\{e^{rq}\, Ei[-q(p+r)] - e^{-rq}\, Ei[q(r-p)]\} - \frac{1}{4} e^{-pq}$
$\{e^{rq}\, Ei[q(p-r)] - e^{-rq}\, Ei[q(p+r)]\}\ [p \gtrless r], = \infty\ [p = r]$ (VIII, 334).

3) $\int Sin\,px\,.\,Cos\,rx\,\frac{dx}{q^2+x^2}=-\frac{1}{4q}e^{-pq}\left\{e^{rq}Ei[q(p-r)]+e^{-rq}Ei[q(r+p)]\right\}-\frac{1}{4q}e^{pq}$
$\left\{e^{rq}Ei[-q(p+r)]+e^{-rq}Ei[q(r-p)]\right\}$ (VIII, 334).

4) $\int Sin\,px\,.\,Cos\,rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}e^{-pq}(e^{rq}+e^{-rq})\,[0<r<p],=\frac{1}{4}\pi e^{-2pq}\,[r=p],=$
$=\frac{1}{4}\pi e^{-rq}(e^{-pq}-e^{pq})\,[p<r<\infty]$ (VIII, 333).

5) $\int Sin\,px\,.\,Cos^2\,rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8}\left\{2e^{-pq}+e^{-q(p+2r)}+e^{q(2r-p)}\right\}[p>2r],=\frac{\pi}{8}\left\{e^{-2pq}+2e^{-pq}\right\}$
$[p=2r],=\frac{\pi}{8}\left\{2e^{-pq}+e^{-q(p+2r)}+e^{q(p-2r)}\right\}[p<2r]$ V. T. 160, N. 4, 15.

6) $\int Sin^2px\,.\,Cos^2\,rx\,\frac{dx}{q^2+x^2}=\frac{\pi}{8q}\left\{1-\frac{1}{2}e^{-2q(p+r)}+e^{-2qr}-\frac{1}{2}e^{2q(r-p)}-e^{-2pq}\right\}[p>r],=$
$=\frac{\pi}{16q}(1-e^{-4pq})\,[p=r],=\frac{\pi}{8q}\left\{1-\frac{1}{2}e^{-2q(p+r)}+e^{-2qr}-\frac{1}{2}e^{2q(p-r)}-e^{-2pq}\right\}[p<r]$
V. T. 160, N. 10, 12.

7) $\int Sin\,2srx\,.Cot\,rx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (H, 83).

8) $\int Sin^2srx\,.Cot\,rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\frac{2e^{-2qr}-e^{-2sqr}-e^{-(s+1)2qr}}{1-e^{-2qr}}$ (H, 84).

9) $\int Sin\,4srx\,.Tg\,rx\,\frac{dx}{q^2+x^2}=-\frac{\pi}{2q}(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (H, 87).

10) $\int Sin^2 2srx\,.\,Tg\,rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\frac{2e^{-2qr}+e^{-4sqr}-e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (H, 87).

11) $\int Sin^{2a-1}x\,.\,Sin\{(2a-1)x\}\,\frac{dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a}}\frac{\pi}{q}(1-e^{-2q})^{2a-1}$ (V, 31*).

12) $\int Sin^{2a-1}x\,.\,Sin\,\{(2a+1)x\}\,\frac{dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a}}\frac{\pi}{q}e^{-2q}\,(1-e^{-2q})^{2a-1}$ (V, 33).

13) $\int Sin^{2a}x\,.\,Sin\,\{(2a-1)x\}\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}e^q\left\{(1-e^{-2q})^{2a}-1\right\}$ (V, 54).

14) $\int Sin^{2a}x\,.\,Sin\,2ax\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}\left\{(1-e^{-2q})^{2a}-1\right\}$ (V, 32).

15) $\int Sin^{2a}x\,.\,Sin\,\{(2a+2)x\}\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}e^{-2q}(1-e^{-2q})^{2a}$ (V, 33).

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16) $\int Sin^{2a} x \,.\, Sin\, 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-2aq} (1-e^{-2q})^{2a}$ (V, 51).

17) $\int Sin^{2a+1} x \,.\, Sin\, 2ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} (e^q - e^{-q}) \{(1-e^{-2q})^{2a} - 1\}$ (V, 42).

18) $\int Sin^{2a+1} x \,.\, Sin\{(2a+1)3x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2} q} e^{-2(2a+1)q} (1-e^{-2q})^{2a+1}$ (V, 40).

19) $\int Sin^{2a} x \,.\, Sin\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1} q} \Big\{ e^{(2a-r)q} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{-2nq} Ei[q(r-2a+2n)] +$
$+ e^{(r-2a)q} \sum_0^{2a} (-1)^{n-1} \binom{2a}{n} e^{2nq} Ei[q(2a-r-2n)] \Big\}$ (V, 37).

20) $\int Sin^{2a} x \,.\, Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-rq} (e^q - e^{-q})^{2a} [r > 2a], = \frac{(-1)^a \pi}{2^{2a+1}} \Big\{ e^{-rq} (e^q - e^{-q})^{2a} -$
$- e^{(2a-r)q} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(r-2a)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{2nq} \Big\} \left[\begin{matrix} r < 2a, \\ \text{entier} \end{matrix}\right], =$
$= \frac{(-1)^a \pi}{2^{2a+1}} \Big\{ e^{-rq} (e^q - e^{-q})^{2a} - e^{(2a-r)q} \sum_0^{d} (-1)^n \binom{2a}{n} e^{-2nq} - e^{(r-2a)q} \sum_0^{d} (-1)^n$
$\binom{2a}{n} e^{2nq} \Big\} \left[\begin{matrix} r < 2a, \\ \text{fractionn.} \end{matrix}\right]; \left[d = \mathcal{E}\left(a - \frac{1}{2} r\right) \right]$ (V, 53).

21) $\int Sin^{2a+1} x \,.\, Sin\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} e^{-rq} (e^q - e^{-q})^a [r > 2a+1], = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q}$
$\Big\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{(r-2a-1)q}$
$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big\} \left[r < 2a+1, d = \mathcal{E} \frac{1}{2} (2a+1-r) \right]$ (V, 42).

22) $\int Sin^{2a+1} x . Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \Big\{ e^{(r-2a-1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei[q(2a+1-2n-r)] +$
$+ e^{(2a+1-r)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei[q(2n-2a-1+r)] \Big\}$ (V, 48).

23) $\int Sin^{2a-1} x \,.\, Cos\{(2a-1)x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a}} \{(1-e^{-2q})^{2a-1} - 1\}$ (V, 32*).

24) $\int Sin^{2a-1} x \,.\, Cos\{(2a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a}} e^{-2q} (1-e^{-2q})^{2a-1}$ (V, 33).

25) $\int Sin^{2a} x \,.\, Cos\{(2a-1)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} (e^q - e^{-q}) \{(1-e^{-2q})^{2a-1} - 1\}$ (V, 42).

26) $\displaystyle\int Sin^{2a} x \,.\, Cos\, 2ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} (1-e^{-2q})^{2a}$ (V, 31).

27) $\displaystyle\int Sin^{2a} x \,.\, Cos\{(2a+2)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-2q} (1-e^{-2q})^{2a}$ (V, 32).

28) $\displaystyle\int Sin^{2a} x \,.\, Cos\, 4ax \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-2aq} (1-e^{-2q})^{2a}$ (V, 40).

29) $\displaystyle\int Sin^{2a+1} x \,.\, Cos\, 2ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-q} \left\{(1-e^{-2q})^{2a+1} - 1\right\}$ (V, 54).

30) $\displaystyle\int Sin^{2a+1} x \,.\, Cos\left\{(2a+1)2x\right\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-(2a+1)q} (1-e^{-2q})^{2a+1}$ (V, 51).

31) $\displaystyle\int Sin^{2a} x \,.\, Cos\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} e^{-rq} (e^q - e^{-q})^{2a} [r>2a], = \frac{(-1)^a}{2^{2a+1}} \frac{\pi}{q} \Big\{ e^{-rq} (e^q - e^{-q})^{2a} -$

$\displaystyle - e^{(2a-r)q} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} + e^{(r-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} \left[r<2a, d = \mathcal{E}\left(a-\frac{1}{2}r\right)\right]$

(V, 42).

32) $\displaystyle\int Sin^{2a} x \,.\, Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}} \Big\{ e^{(r-2a)q} \sum_0^{2a} (-1)^n \binom{2a}{n} e^{2nq}\, Ei[q(2a-2n-r)] +$

$\displaystyle + e^{(2a-r)q} \sum_0^{2a} (-1)^{n-1} \binom{2a}{n} e^{-2nq}\, Ei[q(2n-2a+r)] \Big\}$ (V, 48).

33) $\displaystyle\int Sin^{2a+1} x \,.\, Cos\, rx \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}q} \Big\{ e^{(2a+1-r)q} \sum_0^{2a+1} (-1)^{n+1} \binom{2a+1}{n} e^{-2nq}$

$\displaystyle Ei[q(r-2a-1+2n)] + e^{(r-2a-1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq}\, Ei[q(2a+1-r-2n)] \Big\}$ (V, 37).

34) $\displaystyle\int Sin^{2a+1} x \,.\, Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-rq} (e^q - e^{-q})^{2a+1} [r>2a+1], = \frac{(-1)^{a-1}\pi}{2^{2a+2}}$

$\displaystyle \Big\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(r-2a-1)q} \sum_0^{d} (-1)^n$

$\displaystyle \binom{2a+1}{n} e^{2nq} \Big\} \left[\begin{matrix} r<2a+1, \\ \text{entier} \end{matrix}\right], = \frac{(-1)^{a-1}\pi}{2^{2a+2}} \Big\{ e^{-rq} (e^q - e^{-q})^{2a+1} - e^{(2a+1-r)q}$

$\displaystyle \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(r-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big\} \left[\begin{matrix} r<2a+1, \\ \text{fractionnaire} \end{matrix}\right];$

$\displaystyle \left[d = \mathcal{E}\,\frac{1}{2}(2a-r+1)\right]$ (V, 54).

1) $\int Cos\, px \,.\, Cos\, rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{-pq}(e^{qr}+e^{-qr})$ $[0 < r \leqq p]$ (VIII, 333).

2) $\int Cos\, px \,.\, Cos\, rx \frac{x\,dx}{q^2+x^2} = \frac{1}{4} e^{pq} \{e^{rq} Ei[-q(p+r)] + e^{-rq} Ei[q(r-p)]\} - \frac{1}{4} e^{-pq}$
$\{e^{rq} Ei[q(p-r)] + e^{-rq} Ei[q(p+r)]\}$ $[p \gtrless r]$, $=\infty$ $[p=r]$ (VIII, 334).

3) $\int Cos(p\,Tg^2 x) \,.\, Cos\, x \frac{dx}{q^2+x^2} = \frac{\pi}{2q} \left\{ \frac{1}{2}(e^q+e^{-q}) e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - \frac{1}{2}(e^q-e^{-q}) e^{-p} \right\}$ (VIII, 420*).

4) $\int Cos(p\,Tg^2 x) \,.\, Tg\, x \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^q+e^{-q}} \left\{ \frac{1}{2}(e^q+e^{-q}) e^{-p} - \frac{1}{2}(e^q-e^{-q}) e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} \right\}$
(VIII, 421*).

5) $\int Cos(p\,Tg^2 x) \,.\, Cot\, x \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} \left\{ \frac{e^q+e^{-q}}{e^q-e^{-q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - e^{-p} \right\}$ (VIII, 421*).

6) $\int Cos^{a-1} x \,.\, Sin\{(a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^a} e^{-2q} (1+e^{-2q})^{a-1}$ (V, 18).

7) $\int Cos^a x \,.\, Sin\{(a-1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^q (1+e^{-2q})^a$ (V, 29).

8) $\int Cos^a x \,.\, Sin\, ax \frac{dx}{q^2+x^2} = \frac{1}{2^{a+1} q} \overset{\infty}{\underset{1}{\Sigma}} \binom{a}{n} \{e^{-2nq} Ei(2nq) - e^{2nq} Ei(-2nq)\}$ (V, 17).

9) $\int Cos^a sx \,.\, Sin\, asx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} \{(1+e^{-2qs})^a - 1\}$ (VIII, 496).

10) $\int Cos^a x \,.\, Sin\{(a+1)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-q} (1+e^{-2q})^a$ (V, 29).

11) $\int Cos^a x \,.\, Sin\, 3ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-2aq} (1+e^{-2q})^a$ (V, 27).

12) $\int Cos^a x \,.\, Sin\, rx \frac{dx}{q^2+x^2} = \frac{1}{2^{a+1} q} \left\{ e^{(a-r)q} \overset{a}{\underset{0}{\Sigma}} \binom{a}{n} e^{-2nq} Ei[q(r-a+2n)] - e^{(r-a)q} \right.$
$\left. \overset{a}{\underset{0}{\Sigma}} \binom{a}{n} e^{2nq} Ei[q(a-r-2n)] \right\}$ (V, 20).

13) $\int Cos^a sx \,.\, Sin\, rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+1}} e^{-rq} (e^{qs}+e^{-qs})^a$ $[r > as]$, $= \frac{\pi}{2^{a+1}} \{ e^{-rq} (e^{qs}+e^{-qs})^a -$

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$$-e^{(as-r)q}\sum_0^{d-1}\binom{a}{n}e^{-2nqs}-e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[\frac{r}{s}<a,\text{ entier}\right],=\frac{\pi}{2^{a+1}}\Big\{e^{-rq}(e^{qs}+$$

$$+e^{-qs})^a-e^{(as-r)q}\sum_0^{d}\binom{a}{n}e^{-2nqs}-e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[\frac{r}{s}<a,\text{ fract.}\right];\left[d=\mathcal{E}\,\frac{as-r}{2s}\right]$$

(VIII, 497).

14) $\int Cos^{a-1}x\,.\,Cos\{(a+1)x\}\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{2^a q}e^{-2q}(1+e^{-2q})^{a-1}$ (V, 18).

15) $\int Cos^a x\,.\,Cos\{(a-1)x\}\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{2^{a+1}q}e^{q}(1+e^{-2q})^{a}$ (V, 23).

16) $\int Cos^a sx\,.\,Cos\,asx\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{2^{a+1}q}(1+e^{-2qs})^{a}$ (VIII, 495).

17) $\int Cos^a x\,.\,Cos\{(a+1)x\}\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{2^{a+1}q}e^{-q}(1+e^{-2q})^{a}$ (V, 22).

18) $\int Cos^a sx\,.\,Cos\,rx\dfrac{dx}{q^2+x^2}=\dfrac{\pi}{2^{a+1}q}e^{-rq}(e^{qs}+e^{-qs})^a\,[r>as],=\dfrac{\pi}{2^{a+1}q}\Big\{e^{-rq}(e^{qs}+e^{-qs})^a-$

$$-e^{(as-r)q}\sum_0^{d}\binom{a}{n}e^{-2nqs}+e^{(r-as)q}\sum_0^{d}\binom{a}{n}e^{2nqs}\Big\}\left[r<as,d=\mathcal{E}\,\frac{as-r}{2s}\right]\text{ (VIII, 496).}$$

19) $\int Cos^a x\,.\,Cos\,rx\dfrac{x\,dx}{q^2+x^2}=\dfrac{-1}{2^{a+1}}\Big\{e^{(r-a)q}\sum_0^{a}\binom{a}{n}e^{2nq}\,Ei[q(a-r-2n)]+e^{(a-r)q}\sum_0^{a}\binom{a}{n}$

$$e^{-2nq}\,Ei[q(r-a+2n)]\Big\}\text{ (V, 26).}$$

F. Alg. rat. fract. à dén. q^2+x^2; Circ. Dir. en num. à 3 facteurs. TABLE 164. Lim. 0 et ∞.

1) $\int Sin^{2a}x\,.\,Sin\,2ax\,.\,Sin\,px\dfrac{dx}{q^2+x^2}=\dfrac{(-1)^a}{2^{2a+2}}\dfrac{\pi}{q}e^{-pq}(e^{4aq}-1)(1-e^{-2q})^{2a}\,[p\geqq 4a],=$

$$=\frac{(-1)^a\pi}{2^{2a+2}}\frac{\pi}{q}\Big\{(e^{pq}-e^{-pq})(1-e^{-2q})^{2a}-e^{pq}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}+e^{-pq}\sum_0^{d}(-1)^n$$

$$\binom{2a}{n}e^{2nq}\Big\}\left[p<4a,d=\mathcal{E}\,\frac{1}{2}p\right]\text{ (V, 34).}$$

2) $\int Sin^{2a+1}x\,.\,Sin\{(2a+1)x\}.\,Cos\,px\dfrac{dx}{q^2+x^2}=\dfrac{(-1)^{a-1}}{2^{2a+3}}\dfrac{\pi}{q}e^{-pq}(e^{(2a+1)2q}-1)(1-e^{-2q})^{2a+1}$

$$[p\geqq 4a+2],=\frac{(-1)^a}{2^{2a+3}}\frac{\pi}{q}\Big\{(e^{pq}+e^{-pq})(1-e^{-2q})^{2a+1}-e^{pq}\sum_0^{d}(-1)^n\binom{2a+1}{n}$$

$$e^{-2nq}+e^{-pq}\sum_0^{d}(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\left[p<4a+2,d=\mathcal{E}\,\frac{1}{2}p\right]\text{ (V, 35).}$$

3) $\int Sin^{2a+1}x . Cos\{(2a+1)x\} . Sin px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+3}} \frac{\pi}{q} e^{-pq} (e^{(2a+1)2q}+1)(1-e^{-2q})^{2a+1}$ $[p \geqq 4a+2]$, $= \frac{(-1)^{a-1}}{2^{2a+3}} \frac{\pi}{q} \left\{(e^{pq}-e^{-pq})(1-e^{-2q})^{2a+1} - e^{pq}\sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{-pq}\sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq}\right\}$ $\left[p<4a+2, d=\mathcal{E}\frac{1}{2}p\right]$ (V, 34).

4) $\int Sin^{2a}x . Cos 2ax . Cos px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} e^{-pq}(e^{4aq}+1)(1-e^{-2q})^{2a}$ $[p \geqq 4a]$, $= \frac{(-1)^a}{2^{2a+2}} \frac{\pi}{q} \left\{(e^{pq}+e^{-pq})(1-e^{-2q})^{2a} - e^{pq}\sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} + e^{-pq}\sum_0^d (-1)^n \binom{2a}{n} e^{2nq}\right\}$ $\left[p<4a, d=\mathcal{E}\frac{1}{2}p\right]$ (V, 35).

5) $\int Cos^a sx . Sin asx . Sin px \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2}q} e^{-pq}(e^{2aqs}-1)(1+e^{-2qs})^a$ $[p \geqq 2as]$, $= \frac{\pi}{2^{a+2}q} \left\{(e^{pq}-e^{-pq})(1+e^{-2qs})^a - e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\right\}$ $\left[p<2as, d=\mathcal{E}\frac{p}{2s}\right]$ (VIII, 496).

6) $\int Cos^a x . Sin ax . Sin px \frac{x\,dx}{q^2+x^2} = \frac{1}{2^{a+2}} e^{pq} \sum_0^a \binom{a}{n} \{e^{2nq} Ei[-q(p+2n)] - e^{-2nq} Ei[q(2n-p)]\} - \frac{1}{2^{a+2}} e^{-pq} \sum_0^a \binom{a}{n} \{e^{2nq} Ei[q(p-2n)] - e^{-2nq} Ei[q(2n+p)]\}$ (V, 24).

7) $\int Cos^a sx . Sin asx . Cos px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} e^{-pq}(1-e^{2aqs})(1+e^{-2qs})^a$ $[p>2as]$, $= \frac{\pi}{2^{a+2}}\{1-(1-e^{-2aqs})(1+e^{-2qs})^a\}$ $[p=2as]$, $= \frac{\pi}{2^{a+2}} \left\{(e^{pq}+e^{-pq})(1+e^{-2qs})^a - e^{pq}\sum_0^{d-1} \binom{a}{n} e^{-2nqs} - e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\right\}$ $\left[\begin{matrix}p<2as,\\ \text{entier}\end{matrix}\right]$, $= \frac{\pi}{2^{a+2}} \left\{(e^{pq}+e^{-pq})(1+e^{-2qs})^a - e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} - e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\right\}$ $\left[\begin{matrix}p<2as,\\ \text{fractionn.}\end{matrix}\right]$; $\left[d=\mathcal{E}\frac{p}{2s}\right]$ (VIII, 496).

8) $\int Cos^a sx . Cos asx . Sin px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} e^{-pq}(1+e^{2aqs})(1+e^{-2qs})^a$ $[p>2as]$, $= \frac{\pi}{2^{a+2}}\{(1+e^{-2aqs})(1+e^{-2qs})^a-1\}$ $[p=2as]$, $= \frac{\pi}{2^{a+2}} \left\{(e^{-pq}-e^{pq})(1+e^{-2qs})^a + e^{pq}\sum_0^{d-1} \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\right\}$ $\left[\begin{matrix}p<2as,\\ \text{entier}\end{matrix}\right]$, $= \frac{\pi}{2^{a+2}} \left\{(e^{-pq}-e^{pq})(1+e^{-2qs})^a + e^{pq}\sum_0^d \binom{a}{n} e^{-2nqs} + e^{-pq}\sum_0^d \binom{a}{n} e^{2nqs}\right\}$ $\left[\begin{matrix}p<2as,\\ \text{fractionn.}\end{matrix}\right]$; $\left[d=\mathcal{E}\frac{p}{2s}\right]$ (VIII, 495).

9) $\int Cos^a sx . Cos asx . Cos px \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2} q} e^{-pq} (1+e^{2aqs})(1+e^{-2qs})^a \; [p \geqq 2as], =$

$= \frac{\pi}{2^{a+2} q} \left\{ (e^{pq}+e^{-pq})(1+e^{-2qs})^a - e^{pq} \sum_0^d \binom{a}{n} e^{-2nqs} + e^{-pq} \sum_0^d \binom{a}{n} e^{2nqs} \right\}$

$\left[p < 2as, d = \mathcal{E} \frac{p}{2s} \right]$ (VIII, 498).

10) $\int Cos^a x . Cos ax . Cos px \frac{x\,dx}{q^2+x^2} = \frac{-1}{2^{a+2}} e^{pq} \sum_0^a \binom{a}{n} \{ e^{2nq} Ei[-q(p+2n)] + e^{-2nq}$

$Ei[q(2n-p)] \} - \frac{1}{2^{a+2}} e^{-pq} \sum_0^a \binom{a}{n} \{ e^{2nq} Ei[q(p-2n)] + e^{-2nq} Ei[q(p+2n)] \}$ (V, 24).

11) $\int (1 - Cos^s rx . Cos srx) Tg 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1+e^{-4qr}} \{ e^{-4qr} + 2^{-s-1} (1-e^{-2qr})(1+e^{-2qr})^{s+1} \}$

(H, 146).

12) $\int Cos^s rx . Sin srx . Tg 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q} \frac{1-e^{-4qr}}{1+e^{-4qr}} \{ 2^{-s}(1+e^{-2qr})^s - 1 \}$ (H, 146).

13) $\int (1 - Cos^s rx . Cos srx) Cot 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1-e^{-4qr}} \{ e^{-4qr} - 2^{-s-1}(1+e^{-4qr})$

$(1+e^{-2qr})^s \}$ (H, 146).

14) $\int Cos^s rx . Sin srx . Cot 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2q} \frac{1+e^{-4qr}}{1-e^{-4qr}} \{ 1 - 2^{-s}(1+e^{-2qr})^s \}$ (H, 146).

15) $\int Cos^{s-1} rx . Sin \{(s+1)rx\} . Tg 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q} \frac{1-e^{-4qr}}{1+e^{-4qr}} \{ e^{-2qr}(1+e^{-2qr})^{s-1} - 2^s \}$

(H, 165).

16) $\int Cos^{s-1} rx . Cos \{(s+1)rx\} . Tg 2rx \frac{x\,dx}{q^2+x^2} = \frac{-\pi}{e^{2qr}+e^{-2qr}} \{ e^{-2qr} + 2^{-s}(1-e^{-2qr})$

$(1+e^{-2qr})^s \}$ (H, 165).

17) $\int Cos^{s-1} rx . Sin \{(s+1)rx\} . Cot 2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q} \frac{1+e^{-4qr}}{1-e^{-4qr}} \{ 2^{s-1} - (1+e^{-2qr})^{s-1} e^{-2qr} \}$

(H, 165).

18) $\int Cos^{s-1} rx . Cos \{(s+1)rx\} . Cot 2rx \frac{x\,dx}{q^2+x^2} = \frac{-\pi}{1-e^{-4qr}} \{ e^{-4qr} + 2^{-s}(1+e^{-4qr})$

$(1+e^{-2qr})^{s-1} \}$ (H, 165).

19) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin \left\{ \frac{1}{2} s\pi - (p+s) rx \right\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1} q} e^{-2qr} (1+e^{-2qr})^{p-1}$

$(1-e^{-2qr})^{s-1}$ (H, 150).

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20) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{p+s-1}q}e^{-2qr}(1+e^{-2qr})^{p-1}$
$(1-e^{-2qr})^{s-1}$ (H, 150).

21) $\int Cos^{p-2} rx . Sin^{s-2} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}\frac{dx}{q^2+x^2}=\frac{-\pi}{2^{p+s-3}q}e^{-4qr}(1+e^{-2qr})^{p-2}$
$(1-e^{-2qr})^{s-2}$ (H, 168).

22) $\int Cos^{p-2} rx . Sin^{s-2} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{p+s-3}}e^{-4qr}(1+e^{-2qr})^{p-2}$
$(1-e^{-2qr})^{s-2}$ (H, 168).

F. Alg. rat. fract. à dén. q^2+x^2; Circ. Dir. en num. à plus. fact. TABLE 165. Lim. 0 et ∞.

1) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots}}$
$\{1-(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots\}$ (H, 49).

2) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots}q}$
$(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$ (H, 49).

3) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1r_1+\ldots)x\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots}}\{(1+e^{-2qr})^s$
$(1+e^{-2qr_1})^{s_1}\ldots-1\}$ (H, 44).

4) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr+s_1r_1+\ldots)x\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots}q}(1+e^{-2qr})^s$
$(1+e^{-2qr_1})^{s_1}\ldots$ (H, 44).

5) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(pt+p_1t_1+\ldots+\right.$
$\left.+sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}}\{1-(1+e^{-2mp})^t(1+e^{-2mp_1})^{t_1}\ldots$
$(1-e^{-2mr})^s(1-e^{-2mr_1})^{s_1}\ldots\}$ (H, 54).

6) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(pt+p_1t_1+\ldots+\right.$
$\left.+sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q}(1+e^{-2mp})^t(1+e^{-2mp_1})^{t_1}\ldots$
$(1-e^{-2mr})^s(1-e^{-2mr_1})^{s_1}\ldots$ (H, 54).

7) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - ux\right\}\frac{x\,dx}{q^2+x^2} =$
$= \frac{-\pi}{2^{1+s+s_1+\dots+t+t_1+\dots}}(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\dots(e^{qr}-e^{-qr})^s(e^{qr_1}-$
$-e^{-qr_1})^{s_1}\dots e^{-qu}$ (H, 78).

8) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi - ux\right\}\frac{dx}{q^2+x^2} =$
$= \frac{\pi}{2^{1+s+s_1+\dots+t+t_1+\dots}q}(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\dots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\dots e^{-qu}$
(H, 78). Dans 7) et 8) on a $u > sr+s_1r_1+\dots+pt+p_1t_1+\dots$

9) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\}.Tg\,2rx\frac{dx}{q^2+x^2} = \frac{-\pi}{2^{p+s+1}q}\frac{1}{1+e^{-4qr}}$
$(1+e^{-2qr})^{p+1}(1-e^{-2qr})^{s+1}$ (H, 149).

10) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}.Tg\,2rx\frac{x\,dx}{q^2+x^2} = \frac{-\pi}{2^{p+s+1}}\frac{1}{1+e^{-4qr}}$
$(1+e^{-2qr})^{p+1}(1-e^{-2qr})^{s+1}$ (H, 149).

11) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi-(p+s)rx\right\}.Cot\,2rx\frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s+1}q}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-1}(1-e^{-2qr})^{s-1}$ (H, 150).

12) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi-(p+s)rx\right\}.Cot\,2rx\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s+1}}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-1}(1-e^{-2qr})^{s-1}$ (H, 149).

13) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}.Tg\,2rx\frac{dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}q}\frac{1}{e^{2qr}+e^{-2qr}}$
$(1+e^{-2qr})^p(1-e^{-2qr})^s$ (H, 168).

14) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}.Tg\,2rx\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}}\frac{1}{e^{2qr}+e^{-2qr}}$
$(1+e^{-2qr})^p(1-e^{-2qr})^s$ (H, 168).

15) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}.Cot\,2rx\frac{dx}{q^2+x^2} = \frac{-\pi}{2^{p+s-1}q}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-2}(1-e^{-2qr})^{s-2}e^{-2qr}$ (H, 168).

16) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi-(p+s)rx\right\}.Cot\,2rx\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{p+s-1}}(1+e^{-4qr})$
$(1+e^{-2qr})^{p-2}(1-e^{-2qr})^{s-2}e^{-2qr}$ (H, 168).

1) $\int Sin\,px\,.\,Sin\,rx\,\frac{dx}{q^2-x^2} = -\frac{\pi}{2q}\,Cos\,pq\,.\,Sin\,qr\,[p>r], = -\frac{\pi}{4q}\,Sin\,2pq\,[p=r], =$
$= -\frac{\pi}{2q}\,Sin\,pq\,.\,Cos\,qr\,[p<r]$ (VIII, 335).

2) $\int Sin\,px\,.\,Cos\,rx\,\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}\,Cos\,pq\,.\,Cos\,qr\,[p>r], = -\frac{\pi}{4}\,Cos\,2pq\,[p=r], =$
$= \frac{\pi}{2}\,Sin\,pq\,.\,Sin\,qr\,[p<r]$ (VIII, 335).

3) $\int Cos\,px\,.\,Cos\,rx\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q}\,Sin\,pq\,.\,Cos\,qr\,[p>r], = \frac{\pi}{4q}\,Sin\,2\,pq\,[p=r], =$
$= \frac{\pi}{2q}\,Cos\,pq\,.\,Sin\,qr\,[p<r]$ (VIII, 335).

4) $\int Sin\,2\,srx\,.\,Cot\,rx\,\frac{dx}{q^2-x^2} = \frac{\pi}{q}\,Sin^2\,sqr\,.\,Cot\,qr$ (H, 127).

5) $\int Sin^2\,srx\,.\,Cot\,rx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{4}\,(1 - Sin\,2\,sqr\,.\,Cot\,qr)$ (H, 127).

6) $\int Sin\,4\,srx\,.\,Tg\,rx\,\frac{dx}{q^2-x^2} = \frac{\pi}{q}\,Sin^2\,2\,sqr\,.\,Tg\,qr$ (H, 129).

7) $\int Sin^2\,2\,srx\,.\,Tg\,rx\,\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{4}\,(1 + Sin\,4\,sqr\,.\,Tg\,qr)$ (H, 130).

8) $\int Sin^s\,rx\,.\,Sin\left(\frac{1}{2}s\pi - srx\right)\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left\{Sin^s\,qr\,.\,Cos\left(\frac{1}{2}s\pi - sqr\right) - 2^{-s}\right\}$ (H, 106).

9) $\int Sin^s\,rx\,.\,Cos\left(\frac{1}{2}s\pi - srx\right)\frac{dx}{q^2-x^2} = -\frac{\pi}{2q}\,Sin^s\,qr\,.\,Sin\left(\frac{1}{2}s\pi - sqr\right)$ (H, 106).

10) $\int Cos^a\,sx\,.\,Sin\,asx\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left\{2^{-a} - Cos^a\,qs\,.\,Cos\,aqs\right\}$ (VIII, 506).

11) $\int Cos^a\,sx\,.\,Cos\,asx\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q}\,Cos^a\,qs\,.\,Sin\,aqs$ (VIII, 505).

12) $\int Cos^a\,sx\,.\,Sin\,rx\,\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}\,Cos^a\,qs\,.\,Cos\,qr\,[r>as], = -\frac{\pi}{2}\,Cos^a\,qs\,.\,Cos\,qr + \frac{\pi}{2^{a+1}}$
$[r=as], = -\frac{\pi}{2}\,Cos^a\,qs\,.\,Cos\,qr + \frac{\pi}{2^a}\sum_0^d \binom{a}{n} Cos\left\{(as - 2ns - r)q\right\}\left[\frac{r}{s}<a,\text{ fract.}\right] =$
$= -\frac{\pi}{2}\,Cos^a\,qs\,.\,Cos\,qr - \frac{\pi}{2^{a+1}}\binom{a}{d} + \frac{\pi}{2^a}\sum_0^d \binom{a}{n} Cos\left\{(as - 2ns - r)q\right\}\left[\frac{r}{s}<a,\text{ entier}\right];$
$\left[d = \mathcal{E}\,\frac{as-r}{2s}\right]$ (VIII, 507).

13) $\int Cos^a sx \,.\, Cos rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs \,.\, Sin qr \; [r \geqq as], = -\frac{\pi}{2q} Cos^a qs \,.\, Sin qr + \frac{\pi}{2^a q} \sum_0^d \binom{a}{n}$ $Sin\{(as-2ns-r)q\} \; [r < as]$ (VIII, 506).

14) $\int Cos^a sx \,.\, Sin asx \,.\, Sin px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs \,.\, Cos pq \,.\, Sin aqs \; [p \geqq 2as], = -\frac{\pi}{2} Cos^a qs \,.$ $Sin pq \,.\, Cos aqs - \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Sin\{(p-2ns)q\} \left[p < 2as, d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 506).

15) $\int Cos^a sx \,.\, Sin asx \,.\, Cos px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Cos^a qs \,.\, Sin pq \,.\, Sin aqs \; [p > 2as], = -\frac{\pi}{2^{a+2}} +$ $+ \frac{\pi}{2} Cos^a qs \,.\, Sin pq \,.\, Sin aqs \; [p = 2as], = -\frac{\pi}{2} Cos^a qs \,.\, Cos pq \,.\, Cos aqs + \frac{\pi}{2^{a+1}}$ $\sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{fract.}\right], = -\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs - \frac{\pi}{2^{a+1}} \binom{a}{d} +$ $+ \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{entier}\right]; \left[d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 506).

16) $\int Cos^a sx . Cos asx . Sin px \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Cos^a qs . Cos pq . Cos aqs [p > 2as], = \frac{\pi}{2^{2a+2}} -$ $-\frac{\pi}{2} Cos^a qs \,.\, Cos pq \,.\, Cos aqs \; [p = 2as], = \frac{\pi}{2} Cos^a qs \,.\, Sin pq \,.\, Sin aqs - \frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n}$ $Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{fract.}\right] = \frac{\pi}{2} Cos^a qs \,.\, Sin pq \,.\, Sin aqs + \frac{\pi}{2^{a+1}} \binom{a}{d} -$ $-\frac{\pi}{2^{a+1}} \sum_0^d \binom{a}{n} Cos\{(p-2ns)q\} \left[\frac{p}{2s} < a, \text{entier}\right]; \left[d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 505).

17) $\int Cos^a sx \,.\, Cos asx \,.\, Cos px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cos^a qs \,.\, Sin pq \,.\, Cos aqs \; [p \geqq 2as], = \frac{\pi}{2q} Cos^a qs \,.$ $Cos pq \,.\, Sin aqs + \frac{\pi}{2^{a+1} q} \sum_0^d \binom{a}{n} Sin\{(p-2ns)q\} \left[p < 2as, d = \mathcal{E}\frac{p}{2s}\right]$ (VIII, 505).

18) $\int Cos^s rx \,.\, Sin srx \,.\, Tg\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Tg\, 2qr \,.\, (1 - Cos^s qr \,.\, Cos sqr)$ (H, 146).

19) $\int (1 - Cos^s rx \,.\, Cos srx)\, Tg\, 2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}(1 + Tg\, 2qr \,.\, Cos^s qr \,.\, Sin sqr)$ (H, 146).

20) $\int Cos^s rx \,.\, Sin srx \,.\, Cot\, 2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cot\, 2qr \,.\, (1 - Cos^s qr \,.\, Cos sqr)$ (H, 146).

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21) $\int (1 - Cos^s rx . Cos\, srx)\, Cot\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} (1 - Cot\, 2qr . Cos^s qr . Sin\, sqr)$ (H, 146).

22) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin \left\{\frac{1}{2} s\pi - (p+s) rx\right\} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-1} qr . Sin^{s-1} qr .$

$Cos \left\{\frac{1}{2} s\pi - (p+s) qr\right\}$ (H, 150).

23) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos \left\{\frac{1}{2} s\pi - (p+s) rx\right\} \frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} Cos^{p-1} qr . Sin^{s-1} qr .$

$Sin \left\{\frac{1}{2} s\pi - (p+s) qr\right\}$ (H, 150).

24) $\int Cos^{s-1} rx . Sin \{(s+1) rx\} . Tg\, 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Tg\, 2qr . [1 - Cos^{s-1} qr . Cos \{(s+1) qr\}]$ (H, 166).

25) $\int Cos^{s-1} rx . Cos \{(s+1) rx\} . Tg\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} [1 + Tg\, 2qr . Cos^{s-1} qr . Sin \{(s+1) qr\}]$ (H, 166).

26) $\int Cos^{s-1} rx . Sin \{(s+1) rx\} . Cot\, 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cot\, 2qr . [1 - Cos^{s-1} qr . Cos \{(s+1) qr\}]$ (H, 166).

27) $\int Cos^{s-1} rx . Cos \{(s+1) rx\} . Cot\, 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} [Cot\, 2qr . Cos^{s-1} qr . Sin \{(s+1) qr\} - 1]$ (H, 166).

28) $\int Cos^{p-2} rx . Sin^{s-2} rx . Sin \left\{(s-1) \frac{1}{2} \pi - (p+s) rx\right\} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-2} qr . Sin^{s-2} qr .$

$Cos \left\{(s-1) \frac{1}{2} \pi - (p+s) qr\right\}$ (H, 170).

29) $\int Cos^{p-2} rx . Sin^{s-2} rx . Cos \left\{(s-1) \frac{1}{2} \pi - (p+s) rx\right\} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} Cos^{p-2} qr . Sin^{s-2} qr .$

$Sin \left\{(s-1) \frac{1}{2} \pi - (p+s) qr\right\}$ (H, 170).

F. Alg. rat. fract. à dén. $q^2 - x^2$; Circ. Dir. en num. à plus. fact. TABLE 167. Lim. 0 et ∞.

1) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Sin \left\{(s + s_1 + \ldots) \frac{1}{2} \pi - (sr + s_1 r_1 + \ldots) x\right\} \frac{x\,dx}{q^2 - x^2} =$

$= \frac{\pi}{2} \left\{Sin^s qr . Sin^{s_1} qr_1 \ldots Cos \left\{(s + s_1 + \ldots) \frac{1}{2} \pi - (sr + s_1 r_1 + \ldots) q\right\} - 2^{-s-s_1-\ldots}\right\}$ (H, 106).

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2) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos\left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)x\right\}\frac{dx}{q^2 - x^2} =$

$$= -\frac{\pi}{2q} Sin^s qr . Sin^{s_1} qr_1 \dots Sin\left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)q\right\} \text{ (H, 106).}$$

3) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 + \dots)x\}\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}\left\{2^{-s-s_1-\dots} - Cos^s qr . Cos^{s_1} qr_1 \dots\right.$

$$\left.\dots Cos\{(sr + s_1 r_1 + \dots)q\}\right\} \text{ (H, 104).}$$

4) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Cos\{(sr + s_1 r_1 + \dots)x\}\frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^s qr . Cos^{s_1} qr_1 \dots$

$$\dots Sin\{(sr + s_1 r_1 + \dots)q\} \text{ (H, 104).}$$

5) $\int Sin^s rx \dots Cos^t px \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (sr + \dots + tp + \dots)x\right\}\frac{x\,dx}{q^2 - x^2} =$

$$= \frac{\pi}{2}\left\{Sin^s qr \dots Cos^t pq \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (sr + \dots + tp + \dots)q\right\} - 2^{-t-\dots-s-\dots}\right\} \text{ (H, 108).}$$

6) $\int Sin^s rx \dots Cos^t px \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (sr + \dots + tp + \dots)x\right\}\frac{dx}{q^2 - x^2} =$

$$= -\frac{\pi}{2q} Sin^s qr \dots Cos^t pq \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (sr + \dots + tp + \dots)q\right\} \text{ (H, 108).}$$

7) $\int Sin^s rx \dots Cos^t px \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - ux\right\}\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} Sin^s qr \dots Cos^t pq \dots$

$$\dots Cos\left\{(s + \dots)\frac{1}{2}\pi - qu\right\} [u > sr + \dots + tp + \dots] \text{ (H, 121).}$$

8) $\int Sin^s rx \dots Cos^t px \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - ux\right\}\frac{dx}{q^2 - x^2} = -\frac{\pi}{2q} Sin^s qr \dots Cos^t pq \dots$

$$\dots Sin\left\{(s + \dots)\frac{1}{2}\pi - qu\right\} [u > sr + \dots + tp + \dots] \text{ (H, 121).}$$

9) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi - (p + s)rx\right\} . Tg\, 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^p qr . Sin^s qr . Tg\, 2qr$

$$Cos\left\{\frac{1}{2}s\pi - (p + s)qr\right\} \text{ (H, 150).}$$

10) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi - (p + s)rx\right\} . Tg\, 2rx \frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} Cos^p qr . Sin^s qr . Tg\, 2qr .$

$$Sin\left\{\frac{1}{2}s\pi - (p + s)qr\right\} \text{ (H, 150).}$$

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11) $\int Cos^p rx . Sin^s rx . Sin\left\{\frac{1}{2}s\pi - (p+s)rx\right\} . Cot 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^p qr . Sin^s qr . Cot 2qr .$
$Cos\left\{\frac{1}{2}s\pi - (p+s)qr\right\}$ (H, 150).

12) $\int Cos^p rx . Sin^s rx . Cos\left\{\frac{1}{2}s\pi - (p+s)rx\right\} . Cot 2rx \frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} Cos^p qr . Sin^s qr . Cot 2qr .$
$Sin\left\{\frac{1}{2}s\pi - (p+s)qr\right\}$ (H, 150).

13) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} . Tg 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-1} qr .$
$Sin^{s-1} qr . Tg 2qr . Cos\left\{(s-1)\frac{1}{2}\pi - (p+s)qr\right\}$ (H, 170).

14) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} . Tg 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} Cos^{p-1} qr .$
$Sin^{s-1} qr . Tg 2qr . Sin\left\{(s-1)\frac{1}{2}\pi - (p+s)qr\right\}$ (H, 170).

15) $\int Cos^{p-1} rx . Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} . Cot 2rx \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Cos^{p-1} qr .$
$Sin^{s-1} qr . Cot 2qr . Cos\left\{(s-1)\frac{1}{2}\pi - (p+s)qr\right\}$ (H, 170).

16) $\int Cos^{p-1} rx . Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (p+s)rx\right\} . Cot 2rx \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} Cos^{p-1} qr .$
$Sin^{s-1} qr . Cot 2qr . Sin\left\{(s-1)\frac{1}{2}\pi - (p+s)qr\right\}$ (H, 170).

F. Alg. rat. fract. à dén. $q^4 + x^4$; Circ. Dir. en num. à plus. fact. TABLE 168. Lim. 0 et ∞.

1) $\int Sin 4srx . Tg rx \frac{dx}{4q^4 + x^4} = -\frac{\pi}{8q^3} \frac{1 - 2e^{-2qr} Sin 2qr - e^{-4qr} + 2e^{-(2s+1)2qr} Sin 2qr . (Cos 4sqr - Sin 4sqr) - e^{-4sqr}(1 - e^{-4qr})(Cos 4sqr + Sin 4sqr)}{1 + 2e^{-2qr} Cos 2qr + e^{-4qr}}$ (H, 88).

2) $\int Sin 4srx . Tg rx \frac{x^2\,dx}{4q^4 + x^4} = -\frac{\pi}{4q} \frac{1 + 2e^{-2qr} Sin 2qr - e^{-4qr} - 2e^{-(2s+1)2qr} Sin 2qr . (Cos 4sqr + Sin 4sqr) - e^{-4sqr}(1 - e^{-4qr})(Cos 4sqr - Sin 4sqr)}{1 + 2e^{-2qr} Cos 2qr + e^{-4qr}}$ (H, 88).

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3) $$\int Sin^2 2srx \,.\, Tg rx \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{8q^2} \frac{2e^{-2qr} Sin 2qr - 2e^{-(2s+1)2qr} Sin 2qr \,.\, Cos 4sqr + e^{-4sqr}(1-e^{-4qr}) Sin 4sqr}{1 + 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 88).}$$

4) $$\int Sin^2 2srx \,.\, Tg rx \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{4} \frac{2e^{-2qr} Cos 2qr + 2e^{-4qr} + 2e^{-(2s+1)2qr} Sin 2qr \,.\, Sin 4sqr + e^{-4sqr}(1-e^{-4qr}) Cos 4sqr}{1 + 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 89).}$$

5) $$\int Sin 2srx \,.\, Cot rx \frac{dx}{4q^4+x^4} = \frac{\pi}{8q^3} \frac{1 + 2e^{-2qr} Sin 2qr - e^{-4qr} - e^{-2sqr}(1-e^{-4qr})(Cos 2sqr + Sin 2sqr) - 2e^{-(s+1)2qr} Sin 2qr \,.\, (Cos 2sqr - Sin 2sqr)}{1 - 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 85).}$$

6) $$\int Sin 2srx \,.\, Cot rx \frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{4q} \frac{1 - 2e^{-2qr} Sin 2qr - e^{-4qr} - e^{-2sqr}(1-e^{-4qr})(Cos 2sqr - Sin 2sqr) + 2e^{-(s+1)2qr} Sin 2qr \,.\, (Cos 2sqr + Sin 2sqr)}{1 - 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 85).}$$

7) $$\int Sin^2 srx \,.\, Cot rx \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{8q^2} \frac{2e^{-2qr} Sin 2qr - e^{-2sqr}(1-e^{-4qr}) Sin 2sqr - 2e^{-(s+1)2qr} Cos 2sqr \,.\, Sin 2qr}{1 - 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 85).}$$

8) $$\int Sin^2 srx \,.\, Cot rx \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{4} \frac{2e^{-2qr} Cos 2qr - 2e^{-4qr} - e^{-2sqr}(1-e^{-4qr}) Cos 2sqr + 2e^{-(s+1)2qr} Sin 2sqr \,.\, Sin 2qr}{1 - 2e^{-2qr} Cos 2qr + e^{-4qr}} \quad \text{(H, 85).}$$

9) $$\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{2^{2+s+\ldots}q^2}(1 - 2e^{-2qr} Cos 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots Sin\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr} - Cos 2qr}\right) + \ldots\right\} \quad \text{(H, 51).}$$

10) $$\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x^3\,dx}{4q^4+x^4} = \frac{\pi}{2^{1+s+\ldots}}\left\{1 - (1 - 2e^{-2qr} Cos 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots Cos\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr} - Cos 2qr}\right) + \ldots\right\}\right\} \quad \text{(H, 52).}$$

11) $$\int Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{dx}{4q^4+x^4} = \frac{\pi}{2^{3+s+\ldots}q^3}(1 - 2e^{-2qr} Cos 2qr + e^{-4qr})^{\frac{1}{2}s} \ldots \left\{Cos\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr} - Cos 2qr}\right) + \ldots\right\} - Sin\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr} - Cos 2qr}\right) + \ldots\right\}\right\} \quad \text{(H, 51).}$$

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12) $\int Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots)x\right\}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\ldots}q}(1-2e^{-2qr}\,Cos\,2qr+$
$+e^{-4qr})^{\frac{1}{2}s}\ldots\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)+\ldots\right\}+Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)+\ldots\right\}\right\}$ (H, 51).

13) $\int Cos^s rx\ldots Sin\{(sr+\ldots)x\}\frac{x\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\ldots}q^2}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}$ (H, 46).

14) $\int Cos^s rx\ldots Sin\{(sr+\ldots)x\}\frac{x^3\,dx}{4q^4+x^4}=\frac{\pi}{2^{1+s+\ldots}}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}$ (H, 46).

15) $\int Cos^s rx\ldots Cos\{(sr+\ldots)x\}\frac{dx}{4q^4+x^4}=\frac{\pi}{2^{3+s+\ldots}q^3}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}+Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}\right\}$ (H, 46).

16) $\int Cos^s rx\ldots Cos\{(sr+\ldots)x\}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\ldots}q}(1+2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$\left\{Cos\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}-Sin\left\{s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right)+\ldots\right\}\right\}$ (H, 46).

17) $\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x\,dx}{4q^4+x^4}=\frac{-\pi}{2^{2+s+\ldots+t+\ldots}q^2}$
$(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}$ (H, 56).

18) $\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^3\,dx}{4q^4+x^4}=\frac{\pi}{2^{1+s+\ldots+t+\ldots}}$
$\Big\{1-(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$
$Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\Big\}$ (H, 56).

19) $\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{dx}{4q^4+x^4}=\frac{\pi}{2^{3+s+\ldots+t+\ldots}q^3}$
$(1+2e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}\,Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$

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$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}+\right.$$
$$\left.+Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\right\} \text{ (H, 55).}$$

20) $$\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}$$
$$(1+2e^{-2pq}Cos\,2pq+e^{-4pq})^{\frac{1}{2}t}\ldots(1-2e^{-2qr}Cos\,2qr+e^{-4qr})^{\frac{1}{2}s}\ldots$$
$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}-\right.$$
$$\left.-Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots\right\}\right\}$$
(H, 56).

21) $$\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{x\,dx}{4q^4+x^4}=\frac{-\pi}{2^{2+s+\ldots+t+\ldots}q^2}(e^{2pq}+$$
$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$
$$Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.$$
$$\left.+(sr+\ldots+pt+\ldots-u)q\right\} \text{ (H, 81*).}$$

22) $$\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{x^3\,dx}{4q^4+x^4}=\frac{-\pi}{2^{1+s+\ldots+t+\ldots}}(e^{2pq}+$$
$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$
$$Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.$$
$$\left.+(sr+\ldots+pt+\ldots-u)q\right\} \text{ (H, 81*).}$$

23) $$\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-ux\right\}\frac{dx}{4q^4+x^4}=\frac{\pi}{2^{3+s+\ldots+t+\ldots}q^3}(e^{2pq}+$$
$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\ldots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\ldots e^{-qu}$$
$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+\right.\right.$$
$$\left.+(sr+\ldots+tp+\ldots-u)q\right\}+Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\ldots-\right.$$
$$\left.\left.-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\ldots+(sr+\ldots+tp+\ldots-u)q\right\}\right\} \text{ (H, 81*).}$$

$$24)\int Sin^s rx\dots Cos^t px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-ux\right\}\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{2^{2+s+\dots+t+\dots}q}(e^{2pq}+$$

$$+2\,Cos\,2pq+e^{-2pq})^{\frac{1}{2}t}\dots(e^{2qr}-2\,Cos\,2qr+e^{-2qr})^{\frac{1}{2}s}\dots e^{-qu}$$

$$\left\{Cos\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\dots-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\dots+\right.\right.$$

$$\left.+(sr+\dots+tp+\dots-u)q\right\}-Sin\left\{t\,Arctg\left(\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}\right)+\dots-\right.$$

$$\left.\left.-s\,Arctg\left(\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right)-\dots+(sr+\dots+tp+\dots-u)q\right\}\right\}\quad(\text{II, }81^*).$$

Dans 21) à 24) on a $u>sr+\dots+tp+\dots$

$$25)\int\left\{Cos(p^2x^2)-Sin(p^2x^2)\right\}\frac{dx}{q^4+x^4}=\frac{\pi}{2q^3\sqrt{2}}e^{-p^2q^2}\quad(\text{IV, }291).$$

F. Alg. rat. fract. à dén. q^4-x^4; Circ. Dir. en num. à plus. fact. TABLE 169. Lim. 0 et ∞.

$$1)\int Sin\,4srx\,.\,Tg\,rx\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{2\,Sin^2\,2sqr\,.\,Tg\,qr-(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}\quad(\text{H, }130).$$

$$2)\int Sin\,4srx\,.\,Tg\,rx\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left\{2\,Sin^2\,2sqr\,.\,Tg\,qr+(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}\quad(\text{H, }130).$$

$$3)\int Sin^2\,2srx\,.\,Tg\,rx\frac{x\,dx}{q^4-x^4}=\frac{-\pi}{8q^2}\left\{Sin\,4sqr\,.\,Tg\,qr+(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}\right\}\quad(\text{H, }130).$$

$$4)\int Sin^2\,2srx\,.\,Tg\,rx\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{8}\left\{(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}-2-Sin\,4sqr\,.\,Tg\,qr\right\}\quad(\text{H, }131).$$

$$5)\int Sin\,2srx\,.\,Cot\,rx\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left\{2\,Sin^2\,sqr\,.\,Cot\,qr+(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}\quad(\text{H, }127).$$

$$6)\int Sin\,2srx\,.\,Cot\,rx\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left\{2\,Sin^2\,sqr\,.\,Cot\,qr-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}\quad(\text{H, }127).$$

$$7)\int Sin^2\,srx\,.\,Cot\,rx\frac{x\,dx}{q^4-x^4}=\frac{\pi}{8q^2}\left\{(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}-Sin\,2sqr\,.\,Cot\,qr\right\}\quad(\text{H, }128).$$

$$8)\int Sin^2\,srx\,.\,Cot\,rx\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{8}\left\{2-Sin\,2sqr\,.\,Cot\,qr-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}\quad(\text{H, }128).$$

9) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)x\right\} \frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4q^2}$
$\left\{Sin^s qr . Sin^{s_1} qr_1 \dots Cos \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)q\right\} - 2^{-s-s_1-\dots}\right.$
$\left.(1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \dots\right\}$ (H, 107).

10) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)x\right\} \frac{x^3\,dx}{q^4 - x^4} = \frac{\pi}{4}$
$\left\{2^{-s-s_1-\dots}\left\{(1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \dots - 2\right\} + Sin^s qr . Sin^{s_1} qr_1 \dots\right.$
$\left.\dots Cos \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)q\right\}\right\}$ (H, 107).

11) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)x\right\} \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3}$
$\left\{2^{-s-s_1-\dots}(1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \dots - Sin^s qr . Sin^{s_1} qr_1 \dots\right.$
$\left.\dots Sin \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)q\right\}\right\}$ (H, 107).

12) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)x\right\} \frac{x^2\,dx}{q^4 - x^4} = \frac{-\pi}{4q}$
$\left\{2^{-s-s_1-\dots}(1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \dots + Sin^s qr . Sin^{s_1} qr_1 \dots\right.$
$\left.\dots Sin \left\{(s + s_1 + \dots)\frac{1}{2}\pi - (sr + s_1 r_1 + \dots)q\right\}\right\}$ (H, 107).

13) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 \dots)x\} \frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4q^2}\left\{2^{-s-s_1-\dots}(1 + e^{-2qr})^s\right.$
$\left.(1 + e^{-2qr_1})^{s_1} \dots - Cos^s qr . Cos^{s_1} qr_1 \dots Cos\{(sr + s_1 r_1 + \dots)q\}\right\}$ (H, 105).

14) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 + \dots)x\} \frac{x^3\,dx}{q^4 - x^4} = \frac{\pi}{4}\left\{2^{-s-s_1-\dots}\left\{2 - (1 + e^{-2qr})^s\right.\right.$
$\left.\left.(1 + e^{-2qr_1})^{s_1} \dots\right\} - Cos^s qr . Cos^{s_1} qr_1 \dots Cos\{(sr + s_1 r_1 + \dots)q\}\right\}$ (H, 105).

15) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Cos\{(sr + s_1 r_1 + \dots)x\} \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3}\left\{2^{-s-s_1-\dots}(1 + e^{-2qr})^s\right.$
$\left.(1 + e^{-2qr_1})^{s_1} \dots + Cos^s qr . Cos^{s_1} qr_1 \dots Sin\{(sr + s_1 r_1 + \dots)q\}\right\}$ (H, 104).

16) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Cos\{(sr + s_1 r_1 + \dots)x\} \frac{x^2\,dx}{q^4 - x^4} = \frac{\pi}{4q}\left\{Cos^s qr . Cos^{s_1} qr_1 \dots\right.$
$\left.\dots Sin\{(sr + s_1 r_1 + \dots)q\} - 2^{-s-s_1-\dots}(1 + e^{-2qr})^s (1 + e^{-2qr_1})^{s_1} \dots\right\}$ (H, 104).

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17) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) x \right\} \frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4q^2} \left\{ Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Cos \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) q \right\} - 2^{-s-s_1-\ldots-t-t_1-\ldots} (1 + e^{-2pq})^t (1 + e^{-2p_1 q})^{t_1} \ldots (1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \ldots \right\}$ (H, 109).

18) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) x \right\} \frac{x^3\,dx}{q^4 - x^4} = \frac{\pi}{4} \left\{ 2^{-s-s_1-\ldots-t-t_1-\ldots} (1 + e^{-2pq})^t (1 + e^{-2p_1 q})^{t_1} \ldots (1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \ldots + Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Cos \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) q \right\} \right\}$ (H, 109).

19) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Cos \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) x \right\} \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3} \left\{ 2^{-s-s_1-\ldots-t-t_1-\ldots} (1 + e^{-2pq})^t (1 + e^{-2p_1 q})^{t_1} \ldots (1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \ldots - Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) q \right\} \right\}$ (H, 108).

20) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Cos \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) x \right\} \frac{x^2\,dx}{q^4 - x^4} = \frac{-\pi}{4q} \left\{ 2^{-s-s_1-\ldots-t-t_1-\ldots} (1 + e^{-2pq})^t (1 + e^{-2p_1 q})^{t_1} \ldots (1 - e^{-2qr})^s (1 - e^{-2qr_1})^{s_1} \ldots + Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - (sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots) q \right\} \right\}$ (H, 109).

21) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - ux \right\} \frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4q^2} \left\{ Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Cos \left\{ (s + s_1 + \ldots) \frac{1}{2}\pi - qu \right\} - 2^{-s-s_1-\ldots-t-t_1-\ldots} (e^{pq} + e^{-pq})^t (e^{p_1 q} + e^{-p_1 q})^{t_1} \ldots (e^{qr} - e^{-qr})^s (e^{qr_1} - e^{-qr_1})^{s_1} \ldots e^{-qu} \right\}$ (H, 123*).

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22) $\int Sin^s rx \,.\, Sin^{s_1} r_1 x \ldots Cos^t px \,.\, Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^3\,dx}{q^4-x^4} =$

$= \frac{\pi}{q}\left\{2^{-s-s_1-\ldots-t-t_1-\ldots}(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots e^{-qu}+\right.$

$\left.+Sin^s qr \,.\, Sin^{s_1} qr_1 \ldots Cos^t pq \,.\, Cos^{t_1} p_1 q \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - qu\right\}\right\}$ (H, 123*).

23) $\int Sin^s rx \,.\, Sin^{s_1} r_1 x \ldots Cos^t px \,.\, Cos^{t_1} p_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{q^4-x^4} =$

$= \frac{\pi}{4q^3}\left\{2^{-s-s_1-\ldots-t-t_1-\ldots}(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots\right.$

$\left.e^{-qu} - Sin^s qr \,.\, Sin^{s_1} qr_1 \ldots Cos^t pq \,.\, Cos^{t_1} p_1 q \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - qu\right\}\right\}$ (H, 123*).

24) $\int Sin^s rx \,.\, Sin^{s_1} r_1 x \ldots Cos^t px \,.\, Cos^{t_1} p_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^2\,dx}{q^4-x^4} =$

$= \frac{-\pi}{4q}\left\{Sin^s qr . Sin^{s_1} qr_1 \ldots Cos^t pq . Cos^{t_1} p_1 q \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - qu\right\} + 2^{-s-s_1-\ldots-t-t_1-\ldots}\right.$

$\left.(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots e^{-qu}\right\}$ (H, 123*).

Dans 21) à 24) on a $u > sr + s_1 r_1 + \ldots + tp + t_1 p_1 + \ldots$

F. Alg. rat. fract. à dén. $(q^2+x^2)^a$; Circ. Dir. en num. TABLE 170. Lim. 0 et ∞.

1) $\int Sin px \frac{p^2(q+x)^2 + r(r+1)}{(q+x)^{r+2}}\,dx = \frac{p}{q^r}$ (IV, 289).

2) $\int Cos px \frac{p^2(q+x)^2 + r(r+1)}{(q+x)^{r+2}}\,dx = \frac{r}{q^{r+1}}$ (IV, 289).

3) $\int Sin px \frac{x\,dx}{(q^2+x^2)^2} = \frac{\pi}{4q} p e^{-pq}$ (VIII, 527).

4) $\int Sin px \frac{x^3\,dx}{(q^2+x^2)^2} = \frac{\pi}{4}(2-pq)e^{-pq}$ (VIII, 527).

5) $\int Sin px \frac{x\,dx}{(q^2+x^2)^3} = \frac{\pi}{16q^3}(pq+1)pe^{-pq}$ (IV, 289).

6) $\int Sin px \frac{x\,dx}{(q^2+x^2)^4} = \frac{\pi}{96q^5}(3+3pq+p^2q^2)pe^{-pq}$ (IV, 289).

7) $\int Cos px \frac{dx}{(q^2+x^2)^2} = \frac{\pi}{4q^3}(1+pq)e^{-pq}$ (VIII, 527).

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8) $\int Cos\, p\, x \frac{x^2\, dx}{(q^2+x^2)^2} = \frac{\pi}{4q}(1-pq)e^{-pq}$ (VIII, 527).

9) $\int Cos\, p\, x \frac{dx}{(q^2+x^2)^3} = \frac{\pi}{16 q^5}(3+3pq+p^2q^2)e^{-pq}$ (IV, 289).

10) $\int Sin\, p\, x \frac{x\, dx}{(q^2+x^2)^{a+1}} = \frac{\pi}{1^{a/1}} \frac{e^{-pq}}{2^{a+1}} \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/2}} \frac{p^{a-n}}{q^{a+n}}$ (VIII, 489).

11) $\int Cos\, p\, x \frac{dx}{(q^2+x^2)^{a+1}} = \frac{\pi}{1^{a/1}} \frac{e^{-pq}}{2^{a+1}} \sum_0^\infty \frac{(a-n+1)^{2n/1}}{2^{n/2}} \frac{p^{a-n}}{q^{a+n+1}}$ (VIII, 490).

12) $\int \left\{(1-x^2)\, Cos\, 2x + 2x\, Sin\, 2x\right\} \frac{dx}{(1+x^2)^2} = \frac{2\pi}{e^2}$ (IV, 291).

F. Alg. rat. fract. à dén. $(q^2-x^2)^a$; Circ. Dir. en num. TABLE 171. Lim. 0 et ∞.

1) $\int Sin\, p\, x \frac{x\, dx}{(q^2-x^2)^2} = -\frac{p\pi}{4q} Sin\, p\, q$ (VIII, 565).

2) $\int Sin\, p\, x \frac{x^3\, dx}{(q^2-x^2)^2} = \frac{\pi}{4}(2\, Cos\, p\, q - p\, q\, Sin\, p\, q)$ (VIII, 565).

3) $\int Cos\, p\, x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}(Sin\, p\, q - p\, q\, Cos\, p\, q)$ (VIII, 565).

4) $\int Cos\, p\, x \frac{x^2\, dx}{(q^2-x^2)^2} = -\frac{\pi}{4q}(Sin\, p\, q + p\, q\, Cos\, p\, q)$ (VIII, 565).

5) $\int Sin\, 4\, s\, r\, x\, .\, Tg\, r\, x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}\Big\{2\, Sin^2\, 2\, s\, q\, r . Tg\, q\, r + \frac{1}{2} q\, r\, Sec^2\, q\, r . [-1 + 2\, s\, Cos\{(2s+1)2qr\} +$
$+ (2s+1)\, Cos\, 4\, s\, q\, r] - 4\, s\, q\, r\, Cos\, 4\, s\, q\, r\Big\}$ (H, 131).

6) $\int Sin\, 4\, s\, r\, x\, .\, Tg\, r\, x \frac{x^2\, dx}{(q^2-x^2)^2} = \frac{\pi}{4q}\Big\{\frac{1}{2} q\, r\, Sec^2\, q\, r . [-1 + 2\, s\, Cos\{(2s+1)2qr\} +$
$+ (2s+1)\, Cos\, 4\, s\, q\, r] - 2\, Sin^2\, 2\, s\, q\, r . Tg\, q\, r - 4\, s\, q\, r\, Cos\, 4\, s\, q\, r\Big\}$ (H, 131).

7) $\int Sin^2\, 2\, s\, r\, x\, .\, Tg\, r\, x \frac{x\, dx}{(q^2-x^2)^2} = \frac{\pi r}{4q}\Big\{\frac{1}{4} Sec^2\, q\, r . [2\, s\, Sin\{(2s+1)2qr\} + (2s+1)\, Sin\, 4\, s\, q\, r] -$
$- 2\, s\, Sin\, 4\, s\, q\, r\Big\}$ (H, 132).

8) $\int Sin^2 2srx . Tg rx \frac{x^3 dx}{(q^2-x^2)^2} = \frac{\pi}{8}\left\{1 + Sin 4sqr . Tg qr + \frac{1}{2} qr Sec^2 qr . [2s Sin\{(2s+1)2qr\} + \right.$
$\left. + (2s+1) Sin 4sqr] - 4sqr Sin 4sqr\right\}$ (H, 132).

9) $\int Sin 2srx . Cot rx \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{4q^3}\left\{2 Sin^2 sqr . Cot qr - \frac{1}{2} qr Cosec^2 qr . [-1 + s\right.$
$\left. Cos\{(s-1)2qr\} - (s-1) Cos 2sqr] - 2sqr Cos 2sqr\right\}$ (H, 128).

10) $\int Sin 2srx . Cot rx \frac{x^2 dx}{(q^2-x^2)^2} = \frac{-\pi}{4q}\left\{2 Sin^2 sqr . Cot qr + \frac{1}{2} qr Cosec^2 qr . [-1 + s\right.$
$\left. Cos\{(s-1)2qr\} - (s-1) Cos 2sqr] + 2sqr Cos 2sqr\right\}$ (H, 128).

11) $\int Sin^2 srx . Cot rx \frac{x dx}{(q^2-x^2)^2} = \frac{-\pi r}{4q}\left\{\frac{1}{4} Cosec^2 qr . [s Sin\{(s-1)2qr\} - (s-1) Sin 2sqr] + \right.$
$\left. + sqr Sin 2sqr\right\}$ (H, 128).

12) $\int Sin^2 srx . Cot rx \frac{x^3 dx}{(q^2-x^2)^2} = \frac{\pi}{8}\left\{Sin 2sqr . Cot qr - \frac{1}{2} qr Cosec^2 qr . [s Sin\{(s-1)2qr\} - \right.$
$\left. - (s-1) Sin 2sqr] - 2sqr Sin 2sqr - 1\right\}$ (H, 129).

13) $\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x dx}{(q^2-x^2)^2} = \frac{\pi}{2q} Sin^s qr \ldots \left\{sr Cosec qr . \right.$
$\left. Sin\left\{\frac{1}{2}(s-1)\pi - (s+1)qr\right\} + \ldots\right\}$ (H, 107).

14) $\int Sin^s rx \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x^3 dx}{(q^2-x^2)^2} = \frac{\pi}{4}\left\{2^{1-s-\ldots} - Sin^s qr \ldots\right.$
$\left.\left(Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)q\right\} - q\left[sr Cosec qr . Sin\left\{\frac{1}{2}(s-1)\pi - (s+1)qr\right\} + \ldots\right]\right)\right\}$
(H, 108).

15) $\int Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{dx}{(q^2-x^2)^2} = \frac{-\pi}{4q^3} Sin^s qr \ldots \left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - \right.\right.$
$\left.\left. - (sr+\ldots)q\right\} + q\left[sr Cosec qr . Cos\left\{\frac{1}{2}(s-1)\pi - (s+1)qr\right\} + \ldots\right]\right\}$ (H, 107).

16) $\int Sin^s rx \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - (sr+\ldots)x\right\} \frac{x^2 dx}{(q^2-x^2)^2} = \frac{\pi}{4q} Sin^s qr \ldots \left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - \right.\right.$
$\left.\left. - (sr+\ldots)q\right\} - q\left[sr Cosec qr . Cos\left\{\frac{1}{2}(s-1)\pi - (s+1)qr\right\} + \ldots\right]\right\}$ (H, 107).

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17) $\int Cos^s rx \ldots Sin\{(sr+\ldots)x\}\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{2q}Cos^s qr\ldots\left\{sr\,Sec\,qr.Sin\{(s+1)qr\}+\ldots\right\}$ (H, 105).

18) $\int Cos^s rx \ldots Sin\{(sr+\ldots)x\}\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\left\{Cos^s qr\ldots\left\{2\,Cos\{(sr+\ldots)q\}-q\right.\right.$ $\left.\left.[sr\,Sec\,qr.Sin\{(s+1)qr\}+\ldots]\right\}-2^{1-s-\ldots}\right\}$ (H, 105).

19) $\int Cos^s rx \ldots Cos\{(sr+\ldots)x\}\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}Cos^s qr\ldots\left\{Sin\{(sr+\ldots)q\}-q\right.$ $\left.\left\{sr\,Sec\,qr\,.\,Cos\{(s+1)qr\}+\ldots\right\}\right\}$ (H, 105).

20) $\int Cos^s rx \ldots Cos\{(sr+\ldots)x\}\frac{x^2\,dx}{(q^2-x^2)^2}=-\frac{\pi}{4q}Cos^s qr\ldots\left\{Sin\{(sr+\ldots)q\}+q\right.$ $\left.\left\{sr\,Sec\,qr\,.\,Cos\{(s+1)qr\}+\ldots\right\}\right\}$ (H, 105).

21) $\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{2q}Sin^s qr\ldots$ $\ldots Cos^t pq\ldots\left\{sr\,Cosec\,qr.Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\,Sec\,pq.Sin\{(t+1)pq\}+\ldots\right\}$ (H, 109).

22) $\int Sin^s rx\ldots Cos^t px\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\left\{2^{-s-\ldots-t-\ldots}-\right.$ $\ldots Sin^s qr\ldots Cos^t pq\ldots\left(Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\right\}+q\left[sr\,Cosec\,qr.\right.\right.$ $\left.\left.\left.Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\,Sec\,pq.Sin\{(t+1)pq\}+\ldots\right]\right)\right\}$ (H, 110).

23) $\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{dx}{(q^2-x^2)^2}=-\frac{\pi}{4q^3}$ $Sin^s qr\ldots Cos^t pq\ldots\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\right\}+q\left[sr\,Cosec\,qr.\right.\right.$ $\left.\left.Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\,Sec\,pq.Cos\{(t+1)pq\}+\ldots\right]\right\}$ (H, 109).

24) $\int Sin^s rx\ldots Cos^t px\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)x\right\}\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}Sin^s qr\ldots$ $\ldots Cos^t pq\ldots\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi-(sr+\ldots+tp+\ldots)q\right\}-q\left[sr\,Cosec\,qr.Cos\left\{(s-1)\frac{1}{2}\pi-\right.\right.\right.$ $\left.\left.\left.-(s+1)qr\right\}+\ldots+tp\,Sec\,pq.Cos\{(t+1)pq\}+\ldots\right]\right\}$ (H, 109).

25) $\int Sin^s\, rx \ldots Cos^t\, px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x\,dx}{(q^2-x^2)^2} = -\frac{\pi}{2q}\, Sin^s\, qr \ldots Cos^t\, pq \ldots$
$\left\{Cos\{(u-sr-\ldots-tp-\ldots)q\}.\left[sr\, Cosec\, qr\,.\, Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+\right.\right.$
$\left.+tp\, Sec\, pq\,.\, Sin\{(t+1)pq\}+\ldots\right]+(u-sr-\ldots-tp-\ldots)q$
$\left.Sin\{(u-sr-\ldots-tp-\ldots)q\}\right\}$ (H, 124*).

26) $\int Sin^s\, rx \ldots Cos^t\, px \ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^3\,dx}{(q^2-x^2)^2} = -\frac{\pi}{4}\, Sin^s\, qr \ldots Cos^t\, pq \ldots$
$\left\{Cos\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} + q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\left[sr\, Cosec\, qr\,.\right.\right.$
$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq\,.\, Sin\{(t+1)pq\}+\ldots\Big]+$
$\left.+(u-sr-\ldots-tp-\ldots)q\, Sin\{(u-sr-\ldots-tp-\ldots)q\}\right\}$ (H, 125*).

27) $\int Sin^s\, rx \ldots Cos^t\, px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(q^2-x^2)^2} = -\frac{\pi}{4q^3}\, Sin^s\, qr \ldots Cos^t\, pq \ldots$
$\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} + q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\Big[(u-sr-\ldots-tp-\ldots)+\right.$
$\left.+sr\, Cosec\, qr\,.\, Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq\,.\, Cos\{(t+1)pq\}+\ldots\Big]\right\}$
(H, 124*).

28) $\int Sin^s\, rx \ldots Cos^t\, px \ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi - ux\right\}\frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi}{4q}\, Sin^s\, qr \ldots Cos^t\, pq \ldots$
$\left\{Sin\left\{(s+\ldots)\frac{1}{2}\pi - qu\right\} - q\, Cos\{(u-sr-\ldots-tp-\ldots)q\}.\Big[(u-sr-\ldots-tp-\ldots)+\right.$
$\left.+sr\, Cosec\, qr\,.\, Cos\left\{(s-1)\frac{1}{2}\pi-(s+1)qr\right\}+\ldots+tp\, Sec\, pq\,.\, Cos\{(t+1)pq\}+\ldots\Big]\right\}$
(H, 124*). Dans 25) à 28) on a $u > sr+\ldots+tp+\ldots$

29) $\int Sin\, px\,\frac{x\,dx}{(q^2-x^2)^{a+1}} = \frac{1}{1^{a/1}}\left(\frac{p}{2q}\right)^a\frac{\pi}{2}\sum_0^\infty\frac{(a-n)^{2n/1}}{1^{n/1}}\left(\frac{1}{2pq}\right)^n Cos\left\{\frac{a-n}{2}\pi+pq\right\}$ (VIII, 490).

30) $\int Cos\, px\,\frac{dx}{(q^2-x^2)^{a+1}} = \frac{1}{1^{a/1}}\left(\frac{-p}{2q}\right)^a\frac{\pi}{2q}\sum_0^\infty\frac{(a-n+1)^{2n/1}}{1^{n/1}}\left(\frac{-1}{2pq}\right)^n Sin\left\{\frac{a-n}{2}\pi+pq\right\}$
(VIII, 490).

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1) $\int Sin\, p x \frac{dx}{(q^2+x^2)x} = \frac{\pi}{2q^2}(1-e^{-pq})$ (VIII, 441).

2) $\int Sin^2\, 2srx\,.\, Tg\, rx \frac{dx}{(q^2+x^2)x} = \frac{\pi}{4q^2}(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (H, 174).

3) $\int Sin^2\, srx\,.\, Cot\, rx \frac{dx}{(q^2+x^2)x} = \frac{\pi}{4q^2}\left\{2s-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 172).

4) $\int Sin\, px \frac{dx}{(q^2-x^2)x} = \frac{\pi}{2q^2}(1-Cos\, pq)$ (H, 139).

5) $\int Sin^2\, 2srx\,.\, Tg\, rx \frac{dx}{(q^2-x^2)x} = -\frac{\pi}{4q^2} Sin\, 4sqr\,.\, Tg\, qr$ (H, 174).

6) $\int Sin^2\, srx\,.\, Cot\, rx \frac{dx}{(q^2-x^2)x} = \frac{\pi}{4q^2}\{2s-Sin\, 2sqr\,.\, Cot\, qr\}$ (H, 172).

7) $\int Sin\, 2px \frac{dx}{(q^4+x^4)x} = \frac{\pi}{2q^4}\{1-e^{-pq\sqrt{2}}\, Cos(pq\sqrt{2})\}$ (VIII, 527).

8) $\int Sin^2\, 2srx\,.\, Tg\, rx \frac{dx}{(4q^4+x^4)x} = \frac{\pi}{8q^4}\, \frac{1-e^{-4qr}-e^{-4sqr}\, Cos\, 4sqr-2e^{-(2s+1)2qr}\, Sin\, 4sqr\,.\, Sin\, 2qr+e^{-(s+1)4qr}\, Cos\, 4sqr}{1+2e^{-2qr}\, Cos\, 2qr+e^{-4qr}}$ (H, 174).

9) $\int Sin^2\, srx\,.\, Cot\, rx \frac{dx}{(4q^4+x^4)x} = \frac{\pi}{8q^4}\left\{2s-\frac{1-e^{-4qr}-e^{-2sqr}\, Cos\, 2sqr+2e^{-(s+1)2qr}\, Sin\, 2sqr\,.\, Sin\, 2qr+e^{-(s+2)2qr}\, Cos\, 2sqr}{1-2e^{-2qr}\, Cos\, 2qr+e^{-4qr}}\right\}$ (H, 172).

10) $\int Sin\, px \frac{dx}{(q^4-x^4)x} = \frac{\pi}{4q^4}(2-e^{-pq}-Cos\, pq)$ (H, 139).

11) $\int Sin^2\, 2srx\,.\, Tg\, rx \frac{dx}{(q^4-x^4)x} = \frac{\pi}{8q^4}\left\{(1-e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}-Sin\, 4sqr\,.\, Tg\, qr\right\}$ (H, 175).

12) $\int Sin^2\, srx\,.\, Cot\, rx \frac{dx}{(q^4-x^4)x} = \frac{\pi}{8q^4}\left\{4s-Sin\, 2sqr\,.\, Cot\, qr-(1-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}\right\}$ (H, 172).

13) $\int Sin^2\, px \frac{dx}{(q^2+x^2)x^2} = \frac{\pi}{4q^2}\left\{2p-\frac{1}{q}(1-e^{-2pq})\right\}$ V. T. 172, N. 1.

14) $\int Sin^2\, px \frac{dx}{(q^2-x^2)x^2} = \frac{\pi}{4q^2}\left\{2p-\frac{1}{q} Sin\, 2pq\right\}$ V. T. 172, N. 4.

15) $\int Sin\, p x \frac{dx}{(1+x^2)x^{1-q}} = \frac{1}{4}(-1)^{q-1}\pi e^p\, Cosec\left(\frac{q-1}{2}\pi\right) =$ 16) $-\int Cos\, p x \frac{dx}{(1+x^2)x^{2-q}}$ (IV, 294).

17) $\int Sin\, p x \frac{dx}{(q^2+x^2)x^{2a-1}} = (-1)^a \frac{\pi}{2q^{2a}}(e^{-pq}-1) =$ 18) $q\int (Cos\, p x - 1)\frac{dx}{(q^2+x^2)x^{2a}}$ (VIII, 586).

19) $\int Sin\, p x \frac{dx}{(1-x^2)x^{1-q}} = \frac{1}{8}\pi\, Sin\left(\frac{q-1}{2}\pi - p\right).Cosec\left(\frac{q-1}{2}\pi\right)$ (IV, 294).

20) $\int Cos\, p x \frac{dx}{(1-x^2)x^{2-q}} = -\frac{1}{8}\pi\, Cos\left(\frac{q-1}{2}\pi - p\right).Cosec\left(\frac{q-1}{2}\pi\right)$ (IV, 294).

21) $\int Cos\left(px + \frac{1}{2}r\pi\right)\frac{dx}{(q^2+x^2)x^r} = \frac{\pi}{2q^{r+1}}e^{-pq}$ (IV, 294).

22) $\int Sin\, p x \frac{dx}{(q^2+x^2)^2 x} = \frac{\pi}{2q^4}\left\{1 - \frac{1}{2}e^{-pq}(2+pq)\right\}$ (VIII, 527).

F. Alg. rat. fract. à dén. prod. de bin. et mon.; Circ. Dir. en num. d'autre forme. TABLE 173. Lim. 0 et ∞.

1) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1 r_1+\ldots)x\right\}\frac{dx}{(q^2+x^2)x} =$

$= \frac{\pi}{2^{1+s+s_1+\ldots}q^2}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$ (H, 147).

2) $\int Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr+s_1 r_1+\ldots)x\}\frac{dx}{(q^2+x^2)x} = \frac{\pi}{2q^2}\{1-2^{-s-s_1-\ldots}$

$(1+e^{-2qr})^s(1+e^{-2qr_1})^{s_1}\ldots\}$ (H, 145).

3) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1 r_1+\ldots+\right.$

$\left.+tp+t_1 p_1+\ldots)x\right\}\frac{dx}{(q^2+x^2)x} = \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q^2}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots$

$\ldots(1+e^{-2pq})^t(1+e^{-2p_1 q})^{t_1}\ldots$ (H, 149).

4) $\int Sin^s rx . Sin^{s_1} r_1 x \ldots Cos^t px . Cos^{t_1} p_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(q^2+x^2)x} =$

$= \frac{\pi}{2^{1+s+s_1+\ldots+t+t_1+\ldots}q^2}(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots(e^{pq}+e^{-pq})^t(e^{p_1 q}+e^{-p_1 q})^{t_1}\ldots e^{-qu}$

(H, 162).

5) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots)x\right\}\frac{dx}{(q^2-x^2)x}=$

$=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots)q\right\}$ (H, 147).

6) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr+s_1 r_1+\dots)\}\frac{dx}{(q^2-x^2)x}=\frac{\pi}{2q^2}\Big[1-Cos^s qr . Cos^{s_1} qr_1 \dots$

$\dots Cos\{(sr+s_1 r_1+\dots)q\}\Big]$ (H, 145).

7) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots+\right.$

$\left.+tp+t_1 p_1+\dots)x\right\}\frac{dx}{(q^2-x^2)x}=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots$

$\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots+tp+t_1 p_1+\dots)q\right\}$ (H, 149).

8) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-ux\right\}\frac{dx}{(q^2-x^2)x}=$

$=\frac{\pi}{2q^2} Sin^s qr . Sin^{s_1} qr_1 \dots Cos^t pq . Cos^{t_1} p_1 q \dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-qu\right\}$ (H, 163).

9) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots)x\right\}\frac{dx}{(4q^4+x^4)x}=$

$=\frac{\pi}{2^{3+s+s_1+\dots} q^4}(1-2e^{-2qr}Cos 2qr+e^{-4qr})^{\frac{1}{2}s}(1-2e^{-2qr_1}Cos 2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots$

$\dots Cos\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr}-Cos 2qr}\right)+s_1\, Arctg\left(\frac{Sin 2qr_1}{e^{2qr_1}-Cos 2qr_1}\right)+\dots\right\}$ (H, 147).

10) $\int Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr+s_1 r_1+\dots)x\}\frac{dx}{(4q^4+x^4)x}=\frac{\pi}{8q^4}\Big\{1-2^{-s-s_1-\dots}$

$(1+2e^{-2qr}Cos 2qr+e^{-4qr})^{\frac{1}{2}s}(1+2e^{-2qr_1}Cos 2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots$

$\dots Cos\left\{s\, Arctg\left(\frac{Sin 2qr}{e^{2qr}+Cos 2qr}\right)+s_1\, Arctg\left(\frac{Sin 2qr_1}{e^{2qr_1}+Cos 2qr_1}\right)+\dots\right\}\Big\}$ (H, 145).

11) $\int Sin^s rx . Sin^{s_1} r_1 x \dots Cos^t px . Cos^{t_1} p_1 x \dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1 r_1+\dots+\right.$

$\left.+tp+t_1 p_1+\dots)x\right\}\frac{dx}{(4q^4+x^4)x}=\frac{\pi}{2^{3+s+s_1+\dots+t+t_1+\dots} q^4}(1-2e^{-2qr}Cos 2qr+e^{-4qr})^{\frac{1}{2}s}$

$(1-2e^{-2qr_1}Cos 2qr_1+e^{-4qr_1})^{\frac{1}{2}s_1}\dots(1+2e^{-2pq}Cos 2pq+e^{-4pq})^{\frac{1}{2}t}(1+2e^{-2p_1 q}$

$$Cos\, 2p_1q + e^{-4p_1q})^{\frac{1}{2}t_1} \ldots Cos\left\{t\, Arctg\left(\frac{Sin\, 2pq}{e^{2pq}+Cos\, 2pq}\right) + t_1\, Arctg\left(\frac{Sin\, 2p_1q}{e^{2p_1q}+Cos\, 2p_1q}\right) + \ldots - \right.$$
$$\left. - s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr}-Cos\, 2qr}\right) - s_1\, Arctg\left(\frac{Sin\, 2qr_1}{e^{2qr_1}-Cos\, 2qr_1}\right) - \ldots\right\} \text{ (H, 149).}$$

12) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x \ldots Cos^t px\,.\,Cos^{t_1} p_1x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(4q^4+x^4)x} =$$
$$= \frac{\pi}{2^{3+s+s_1+\ldots+t+t_1+\ldots}q^4}(e^{2qr}-2\,Cos\, 2qr+e^{-2qr})^{\frac{1}{2}s}(e^{2qr_1}-2\,Cos\, 2qr_1+e^{-2qr_1})^{\frac{1}{2}s_1}\ldots$$
$$\ldots(e^{2pq}+2\,Cos\, 2pq+e^{-2pq})^{\frac{1}{2}t}(e^{2p_1q}+2\,Cos\, 2p_1q+e^{-2p_1q})^{\frac{1}{2}t_1}\ldots e^{-qu}$$
$$Cos\left\{t\, Arctg\left(\frac{Sin\, 2pq}{e^{2pq}+Cos\, 2pq}\right) + t_1\, Arctg\left(\frac{Sin\, 2p_1q}{e^{2p_1q}+Cos\, 2p_1q}\right) + \ldots - s\, Arctg\left(\frac{Sin\, 2qr}{e^{2qr}-Cos\, 2qr}\right) - \right.$$
$$\left. - s_1\, Arctg\left(\frac{Sin\, 2qr_1}{e^{2qr_1}-Cos\, 2qr_1}\right) - \ldots\right\} \text{ (H, 163).}$$

13) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)x\right\}\frac{dx}{(q^4-x^4)x} =$$
$$= \frac{\pi}{4q^4}\left\{2^{-s-s_1-\ldots}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots + Sin^s qr\,.\,Sin^{s_1} qr_1 \ldots\right.$$
$$\left.\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots)q\right\}\right\} \text{ (H, 147).}$$

14) $$\int Cos^s rx\,.\,Cos^{s_1} r_1x \ldots Sin\left\{(sr+s_1r_1+\ldots)x\right\}\frac{dx}{(q^4-x^4)x} = \frac{\pi}{4q^4}\left\{2 - 2^{-s-s_1-\ldots}(1+e^{-2qr})^s\right.$$
$$\left.(1-e^{-2qr_1})^{s_1}\ldots - Cos^s qr\,.\,Cos^{s_1} qr_1 \ldots Cos\left\{(sr+s_1r_1+\ldots)q\right\}\right\} \text{ (H, 145).}$$

15) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x \ldots Cos^t px\,.\,Cos^{t_1} p_1x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots+\right.$$
$$\left.+tp+t_1p_1+\ldots)x\right\}\frac{dx}{(q^4-x^4)x} = \frac{\pi}{4q^4}\left\{2^{-s-s_1-\ldots-t-t_1-\ldots}(1-e^{-2qr})^s(1-e^{-2qr_1})^{s_1}\ldots\right.$$
$$\ldots(1+e^{-2pq})^t(1+e^{-2p_1q})^{t_1}\ldots + Sin^s qr\,.\,Sin^{s_1} qr_1 \ldots Cos^t pq\,.\,Cos^{t_1} p_1q \ldots$$
$$\left.\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - (sr+s_1r_1+\ldots+tp+t_1p_1+\ldots)q\right\}\right\} \text{ (H, 149).}$$

16) $$\int Sin^s rx\,.\,Sin^{s_1} r_1x \ldots Cos^t px\,.\,Cos^{t_1} p_1x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi - ux\right\}\frac{dx}{(q^4-x^4)x} = \frac{\pi}{4q^4}$$
$$\left\{2^{-s-s_1-\ldots-t-t_1-\ldots}(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\ldots(e^{pq}+e^{-pq})^t(e^{p_1q}+e^{-p_1q})^{t_1}\ldots e^{-qu} + \right.$$
$$\left. + Sin^s qr\,.\,Sin^{s_1} qr_1 \ldots Cos^t pq\,.\,Cos^{t_1} p_1q \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi - qu\right\}\right\} \text{ (H, 163).}$$

Dans 4), 8), 12) et 16) on a $u > sr+s_1r_1+\ldots+tp+t_1p_1+\ldots$

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F. Alg. rat. fract. à dén. prod. de bin. et mon.; Circ. Dir. en num. d'autre forme. — TABLE 173, suite. — Lim. 0 et ∞.

17) $\int\left\{\frac{Sin\,x}{x}-\frac{1}{1+x}\right\}\frac{dx}{x}=1-A$ V. T. 158, N. 3 et T. 173, N. 18.

18) $\int\left\{Cos\,x-\frac{1}{1+x}\right\}\frac{dx}{x}=-A$ (VIII, 457).

19) $\int\left\{\frac{Cos\,x-1}{x^2}+\frac{1}{2(1+x)}\right\}\frac{dx}{x}=\frac{1}{2}A-\frac{3}{4}$ (IV, 293).

20) $\int\left\{Cos\,qx-Cos\,px\right\}\frac{dx}{(1+x^2)x^2}=\frac{1}{2}\pi(e^{-p}-e^{-q})+\frac{1}{2}\pi(p-q)$ (IV, 294).

21) $\int\left\{Cos\,x-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-A$ (VIII, 671). 22) $\int\left\{Cos(x^2)-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-\frac{1}{2}A$ (VIII, 671).

23) $\int\left\{Cos(x^{2^a})-\frac{1}{1+x^2}\right\}\frac{dx}{x}=-\frac{1}{2^a}A=$ 24) $\int\left\{Cos(x^{2^a})-\frac{1}{1+x^{2^{a+1}}}\right\}\frac{dx}{x}$ (VIII, 701).

F. Alg. rat. fract. à dén. prod. de binôm.; Circ. Dir. en num. à un fact. *Sin x*. — TABLE 174. — Lim. 0 et ∞.

1) $\int Sin\,px\frac{x\,dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2(q^2-r^2)}(e^{-pr}-e^{-pq})$ (VIII, 330).

2) $\int Sin\,px\frac{x^3\,dx}{(q^2+x^2)(r^2+x^2)}=\frac{\pi}{2(q^2-r^2)}(q^2e^{-pq}-r^2e^{-pr})$ (VIII, 330).

3) $\int Sin\,px\frac{x\,dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2(q^2-r^2)}\left\{Cos\,pq-Cos\,pr\right\}$ (VIII, 331).

4) $\int Sin\,px\frac{x^3\,dx}{(q^2-x^2)(r^2-x^2)}=\frac{\pi}{2(q^2-r^2)}\left\{q^2\,Cos\,pq-r^2\,Cos\,pr\right\}$ (VIII, 331*).

5) $\int Sin\,px\frac{x\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^4}\left\{(1+pq)e^{-pq}-Cos\,pq\right\}$

6) $\int Sin\,px\frac{x^3\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8q^2}\left\{(1-pq)e^{-pq}-Cos\,pq\right\}$

7) $\int Sin\,px\frac{x^5\,dx}{(q^2+x^2)(q^4-x^4)}=\frac{\pi}{8}\left\{(pq-3)e^{-pq}-Cos\,pq\right\}$

Sur 5) à 7) voyez V. T. 161, N. 13, 15 et T. 170, N. 3, 4.

8) $\int Sin\,px\frac{dx}{x(x^2+2^2)(x^2+4^2)\dots(x^2+4a^2)}=\frac{\pi}{2^{2a}}\,\frac{(-1)^a}{1^{2a|1}}\sum_0^a(-1)^n\binom{2a}{n}e^{2(n-a)p}$ (VIII, 434).

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9) $\int Sin\, p x \frac{x\, d x}{(x^2+1^2)(x^2+3^2)\ldots\{x^2+(2a+1)^2\}} = \frac{\pi}{2^{2a}} \frac{(-1)^a}{1^{2a+1/1}} \sum_0^a (-1)^n \binom{2a+1}{n} (2a+1-2n) e^{(2n-2a-1)p}$ (VIII, 434).

10) $\int Sin\, p x . \left\{\frac{p^2}{(r+x)^q} + \frac{q(q+1)}{(r+x)^{q+2}}\right\} d x = p r^{-q}$ (IV, 295).

11) $\int Sin\, p x \frac{(r-x i)^{-q}-(r+x i)^{-q}}{2 i} d x = \frac{\pi}{2\Gamma(q)} p^{q-1} e^{-p r}$ (VIII, 445).

12) $\int Sin\, p x \frac{(r-x i)^{-q}+(r+x i)^{-q}}{2} x^{2a-1} d x = (-1)^{a-\frac{1}{2}} \frac{\pi}{2\Gamma(q)} \frac{d^{2a-1}}{d p^{2a-1}} . p^{q-1} e^{-p r}$ V. T. 175, N. 10.

13) $\int Sin\, p x \frac{(r-x i)^{-q}-(r+x i)^{-q}}{2 i} x^{2a} d x = (-1)^a \frac{\pi}{2\Gamma(q)} \frac{d^{2a}}{d p^{2a}} . p^{q-1} e^{-p r}$ V. T. 174, N. 11.

14) $\int Sin \left(\frac{1}{2} a\pi + p x\right) \frac{(r-x i)^{-q}-(r+x i)^{-q}}{2 i} x^a d x = \frac{\pi}{2\Gamma(q)} \frac{d^a}{d p^a} . p^{q-1} e^{-p r}$

V. T. 174, N. 13 et T. 175, N. 12.

15) $\int Sin^2 p x \frac{d x}{(q^2+x^2)(r^2+x^2)} = \frac{\pi}{4 q r (q^2-r^2)} \{q - r + r e^{-2pq} - q e^{-2pr}\}$ (VIII, 539).

16) $\int Sin^2 p x \frac{d x}{(q^2-x^2)(r^2-x^2)} = \frac{\pi}{4 q r (q^2-r^2)} \{r\, Sin\, p q - q\, Sin\, p r\}$ (VIII, 539).

F. Alg. rat. fract. à dén. prod. de bin.; Circ. Dir. en num. d' autre forme. TABLE 175. Lim. 0 et ∞.

1) $\int Cos\, p x \frac{d x}{(q^2+x^2)(r^2+x^2)} = \frac{\pi}{2 q r (q^2-r^2)} (q e^{-p r} - r e^{-p q})$ (VIII, 331).

2) $\int Cos\, p x \frac{x^2\, d x}{(q^2+x^2)(r^2+x^2)} = \frac{\pi}{2(q^2-r^2)} (q e^{-p q} - r e^{-p r})$ (VIII, 331).

3) $\int Cos\, p x \frac{d x}{(q^2-x^2)(r^2-x^2)} = \frac{\pi}{2 q r (q^2-r^2)} (q\, Sin\, p r - r\, Sin\, p q)$ (VIII, 331).

4) $\int Cos\, p x \frac{x^2\, d x}{(q^2-x^2)(r^2-x^2)} = \frac{\pi}{2(q^2-r^2)} (r\, Sin\, p r - q\, Sin\, p q)$ (VIII, 331).

5) $\int Cos\, p x \frac{d x}{(q^2+x^2)(q^4-x^4)} = \frac{\pi}{8 q^5} \{Sin\, p q + (p q + 2) e^{-p q}\}$

6) $\int Cos\, p x \frac{x^2\, d x}{(q^2+x^2)(q^4-x^4)} = \frac{\pi}{8 q^3} (Sin\, p q - p q e^{-p q})$

7) $\int Cos\, p x \frac{x^4\, d x}{(q^2+x^2)(q^4-x^4)} = \frac{\pi}{8 q} \{Sin\, p q + (p q - 2) e^{-p q}\}$

Sur 5) à 7) voyez T. 161, N. 16, 18 et T. 170, N. 7, 8.

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8) $\int Cos p x \frac{dx}{(x^2+1^2)(x^2+3^2)\ldots\{x^2+(2a+1)^2\}} = \frac{(-1)^a}{1^{2a+1/1}} \frac{\pi}{2^{2a+1}} \sum_0^a (-1)^n \binom{2a+1}{n} e^{(2n-2a-1)p}$ (VIII, 434).

9) $\int Cos p x . \left\{ \frac{p^2}{(r+x)^q} + \frac{q(q+1)}{(r+x)^{q+2}} \right\} dx = \frac{q}{r^{q+1}}$ (IV, 295).

10) $\int Cos p x \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} dx = \frac{\pi}{2\Gamma(q)} p^{q-1} e^{-pr}$ (VIII, 445).

11) $\int Cos p x \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} x^{2a} dx = (-1)^a \frac{\pi}{\Gamma(q)} \frac{d^{2a}}{dp^{2a}} . p^{q-1} e^{-pr}$ V. T. 175, N. 10.

12) $\int Cos p x \frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i} x^{2a-1} dx = (-1)^{a-\frac{1}{2}} \frac{\pi}{2\Gamma(q)} \frac{d^{2a-1}}{dp^{2a-1}} . p^{q-1} e^{-pr}$ V. T. 174, N. 11.

13) $\int Cos \left\{\frac{1}{2} a\pi + px\right\} \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} x^a dx = \frac{\pi}{2\Gamma(q)} \frac{d^a}{dp^a} . p^{q-1} e^{-pr}$ V. T. 174, N. 12 et T. 175, N. 11.

14) $\int Cos^2 p x \frac{dx}{(q^2+x^2)(r^2+x^2)} = \frac{\pi}{4qr(q^2-r^2)} (q - r + q e^{-2pr} - r e^{-2pq})$ (VIII, 539).

15) $\int Cos^2 p x \frac{dx}{(q^2-x^2)(r^2-x^2)} = \frac{\pi}{4qr(q^2-r^2)} (q Sin pr - r Sin pq)$ (VIII, 539).

16) $\int \left\{ \frac{(r-xi)^{-q}-(r+xi)^{-q}}{2i} Sin p x + \frac{(r-xi)^{-q}+(r+xi)^{-q}}{2} Cos p x \right\} dx = \frac{\pi}{\Gamma(q)} p^{q-1} e^{-pr}$ $[p>0], = 0\ [p<0]$ V. T. 174, N. 11 et T. 175, N. 10.

17) $\int Sin p x . \left\{ \frac{r+x}{q^2+(r+x)^2} - \frac{r-x}{q^2+(r-x)^2} \right\} dx = \pi e^{-pr} Cos pr$ (IV, 294).

F. Alg. rat. fract. à dén. polynôme; Circ. Dir. en num. TABLE 176. Lim. 0 et ∞.

1) $\int Sin p x \frac{x dx}{(x^2+q^2)^2+r^2} = \frac{\pi}{2r} e^{-p\lambda} Sin p\mu$ V. T. 176, N. 3.

2) $\int Sin p x \frac{x^2+q^2}{(x^2+q^2)^2+r^2} x dx = \frac{\pi}{2} e^{-p\lambda} Cos p\mu$ V. T. 176, N. 4.

3) $\int Cos p x \frac{dx}{(x^2+q^2)^2+r^2} = \frac{\pi}{2r} \frac{e^{-p\lambda}}{\sqrt{q^4+r^2}} (\mu Cos p\mu + \lambda Sin p\mu)$ (VIII, 526).

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4) $\int Cos\,p\,x \frac{x^2+q^2}{(x^2+q^2)^2+r^2}\,dx = \frac{\pi}{2}\frac{e^{-p\lambda}}{\sqrt{q^4+r^2}}(\lambda\,Cos\,p\,\mu - \mu\,Sin\,p\,\mu)$ (VIII, 526).

Dans 1) à 4) on a $\left[\begin{matrix}2\lambda^2=\sqrt{q^4+r^2}+q^2,\\ 2\mu^2=\sqrt{q^4+r^2}-q^2\end{matrix}\right]$.

5) $\int Sin\,p\,x \frac{x\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r^2} e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(p\,r\,Sin\,\lambda)$ (VIII, 526).

6) $\int Sin\,p\,x \frac{x^3\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2} e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(2\lambda - p\,r\,Sin\,\lambda)$ (VIII, 526).

7) $\int Cos\,p\,x \frac{dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r^3} e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(\lambda + p\,r\,Sin\,\lambda)$ (VIII, 526).

8) $\int Cos\,p\,x \frac{x^2\,dx}{x^4+2r^2x^2\,Cos\,2\lambda+r^4} = \frac{\pi}{2r} e^{-pr\,Cos\,\lambda}\,Cosec\,2\lambda\,.\,Sin\,(\lambda - p\,r\,Sin\,\lambda)$ (VIII, 526).

9) $\int Sin\,p\,x \frac{dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei\,(pq) - e^{pq}\,Ei\,(-pq) + 2\,Ci\,(pq)\,.\,Sin\,pq -$
$- 2\,Si\,(pq)\,.\,Cos\,pq - \pi\,(e^{-pq} - Cos\,pq)\}$

10) $\int Sin\,p\,x \frac{x\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q}\{e^{-pq}\,Ei\,(pq) - e^{pq}\,Ei\,(-pq) - 2\,Ci\,(pq)\,.\,Sin\,pq +$
$+ 2\,Si\,(pq)\,.\,Cos\,pq + \pi\,(e^{-pq} - Cos\,pq)\}$

11) $\int Sin\,p\,x \frac{x^2\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4}\{e^{pq}\,Ei\,(-pq) - e^{-pq}\,Ei\,(pq) + 2\,Ci\,(pq)\,.\,Sin\,pq -$
$- 2\,Si\,(pq)\,.\,Cos\,pq + \pi\,(e^{-pq} + Cos\,pq)\}$ Sur 9) à 11) voyez T. 160, N. 1, 3, 4.

12) $\int Sin\,p\,x \frac{dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei\,(pq) - e^{pq}\,Ei\,(-pq) + 2\,Ci\,(pq)\,.\,Sin\,pq -$
$- 2\,Si\,(pq)\,.\,Cos\,pq + \pi\,(e^{-pq} - Cos\,pq)\}$

13) $\int Sin\,p\,x \frac{x\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q}\{e^{pq}\,Ei\,(-pq) - e^{-pq}\,Ei\,(pq) + 2\,Ci\,(pq)\,.\,Sin\,pq -$
$- 2\,Si\,(pq)\,.\,Cos\,pq + \pi\,(e^{-pq} - Cos\,pq)\}$

14) $\int Sin\,p\,x \frac{x^2\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4}\{e^{pq}\,Ei\,(-pq) - e^{-pq}\,Ei\,(pq) + 2\,Ci\,(pq)\,.\,Sin\,pq -$
$- 2\,Si\,(pq)\,.\,Cos\,pq - \pi\,(e^{-pq} + Cos\,pq)\}$ Sur 12) à 14) voyez T. 160, N. 3, 4 et T. 161, N. 1.

15) $\int Cos\,p\,x \frac{dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q^2}\{e^{-pq}\,Ei\,(pq) + e^{pq}\,Ei\,(-pq) - 2\,Ci\,(pq)\,.\,Cos\,pq -$
$- 2\,Si\,(pq)\,.\,Sin\,pq + \pi\,(e^{-pq} + Sin\,pq)\}$

16) $\int Cos\, p\, x \frac{x\,dx}{q^3+q^2x+qx^2+x^3} = \frac{1}{4q}\{-e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) + 2\,Ci(pq).\,Cos\,pq + 2\,Si(pq).\,Sin\,pq + \pi(e^{-pq} - Sin\,pq)\}$

17) $\int Cos\, p\, x \frac{x^2\,dx}{q^3+q^2x+qx^2+x^3} = -\frac{1}{4}\{e^{-pq}\,Ei(pq) + e^{pq}\,Ei(-pq) + 2\,Ci(pq).\,Cos\,pq + 2\,Si(pq).\,Sin\,pq + \pi(e^{-pq} - Sin\,pq)\}$ Sur 15) à 17) voyez T. 160, N. 2, 5, 6.

18) $\int Cos\, p\, x \frac{dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q^2}\{-e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) + 2\,Ci(pq).\,Cos\,pq + 2\,Si(pq).\,Sin\,pq + \pi(e^{-pq} + Sin\,pq)\}$

19) $\int Cos\, p\, x \frac{x\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4q}\{-e^{-pq}\,Ei(pq) - e^{pq}\,Ei(-pq) + 2\,Ci(pq).\,Cos\,pq + 2\,Si(pq).\,Sin\,pq - \pi(e^{-pq} - Sin\,pq)\}$

20) $\int Cos\, p\, x \frac{x^2\,dx}{q^3-q^2x+qx^2-x^3} = \frac{1}{4}\{e^{-pq}\,Ei(pq) + e^{pq}\,Ei(-pq) + 2\,Ci(pq).\,Cos\,pq + 2\,Si(pq).\,Sin\,pq - \pi(e^{-pq} - Sin\,pq)\}$ Sur 18) à 20) voyez T. 160, N. 5, 6 et T. 161, N. 2.

21) $\int Cos\,px.\left\{\frac{r+x}{q^2+(r+x)^2} + \frac{r-x}{q^2+(r-x)^2}\right\}dx = \pi e^{-pr}\,Sin\,pr$ (IV, 294).

22) $\int Sin\,p\,x \frac{dx}{(x^4+2r^2x^2\,Cos\,2\lambda + r^4)x} = \frac{\pi}{2r^4}\{1 - e^{pr\,Cos\,\lambda}\,Cosec\,2\lambda.\,Sin(2\lambda + pr\,Sin\,\lambda)\}$ (VIII, 526).

F. Alg. irrat. fract.; Circ. Dir. en num. mon.; Circ. de x. TABLE 177. Lim. 0 et ∞.

1) $\int Sin\,p\,x \frac{dx}{\sqrt{x}} = \sqrt{\frac{\pi}{2p}} =$ 2) $\int Cos\,px \frac{dx}{\sqrt{x}}$ (VIII, 442).

3) $\int Sin^3\,p\,x \frac{dx}{\sqrt{x}} = \frac{1}{4}(3\sqrt{3} - 1)\sqrt{\frac{\pi}{6p}}$ V. T. 177, N. 7.

4) $\int Cos^3\,p\,x \frac{dx}{\sqrt{x}} = \frac{1}{4}(3\sqrt{3} + 1)\sqrt{\frac{\pi}{6p}}$ V. T. 177, N. 8.

5) $\int Sin^{2a}\,p\,x \frac{dx}{\sqrt{x}} = \infty =$ 6) $\int Cos^{2a}\,p\,x \frac{dx}{\sqrt{x}}$ (IV, 306*).

7) $\int Sin^{2a+1}\,p\,x \frac{dx}{\sqrt{x}} = \frac{1}{2^{2a}}\sqrt{\frac{\pi}{2p}}.\sum_0^a (-1)^n \binom{2a+1}{a+n+1} \frac{1}{\sqrt{2n+1}}$ (VIII, 476*).

8) $\int Cos^{2a+1} px \frac{dx}{\sqrt{x}} = \frac{1}{2^{2a}} \sqrt{\frac{\pi}{2p}} \cdot \sum_0^a \binom{2a+1}{a+n+1} \frac{1}{\sqrt{2n+1}}$ (VIII, 476*).

9) $\int Tg px \frac{dx}{\sqrt{x}} = \sqrt{\frac{\pi}{p}} \cdot \sum_1^\infty \frac{(-1)^{n+1}}{\sqrt{n}}$ (IV, 306).

10) $\int Sin px \frac{dx}{x\sqrt{x}} = \sqrt{2p\pi}$ (VIII, 367).

11) $\int Sin^2 px \frac{dx}{x\sqrt{x}} = \sqrt{p\pi}$ (VIII, 367).

12) $\int Sin^2 px \frac{dx}{x^2\sqrt{x}} = \frac{4}{3} p \sqrt{p\pi}$ (VIII, 367).

13) $\int Sin^3 px \frac{dx}{x\sqrt{x}} = \frac{1}{4}(3-\sqrt{3})\sqrt{2p\pi}$ V. T. 177, N. 19.

14) $\int Sin^3 px \frac{dx}{x^2\sqrt{x}} = \frac{1}{2}(\sqrt{3}-1) p \sqrt{2p\pi}$ V. T. 177, N. 19.

15) $\int Sin^4 px \frac{dx}{x\sqrt{x}} = \frac{1}{4}(4-\sqrt{2})\sqrt{p\pi}$ V. T. 177, N. 18.

16) $\int Sin^4 px \frac{dx}{x^2\sqrt{x}} = \frac{2}{3}(2-\sqrt{2}) p \sqrt{p\pi}$ V. T. 177, N. 18.

17) $\int Sin^6 px \frac{dx}{x^5\sqrt{x}} = \frac{16}{315}(5-32\sqrt{2}+27\sqrt{3}) p^4 \sqrt{p\pi}$ V. T. 177, N. 18.

18) $\int Sin^{2b} px \frac{dx}{x^a\sqrt{x}} = \pm \frac{p^{a-\frac{1}{2}}\sqrt{\pi}}{1^{a/2}\, 2^{2b-2a}} \sum_1^b (-1)^n \binom{2b}{b+n} n^{a-\frac{1}{2}}$ (IV, 308).

19) $\int Sin^{2b+1} px \frac{dx}{x^a\sqrt{x}} = \pm \frac{p^{a-\frac{1}{2}}\sqrt{\pi}}{1^{a/2}\, 2^{2b-a-\frac{1}{2}}} \sum_1^{b+1} (-1)^{n-1} \binom{2b+1}{b+n} (2n-1)^{a-\frac{1}{2}}$ (IV, 309).

Dans 18) et 19) on a $+$ pour un a de la forme $4h$ et $4h+1$,
$-$ pour un a de la forme $4h+2$ et $4h+3$.

20) $\int Cos\, x \frac{dx}{x\sqrt{x}} = \infty$ (VIII, 367).

21) $\int Sin\, qx \,.\, Cos\, px \frac{dx}{\sqrt{x}} = \left\{\frac{1}{2\sqrt{p+q}} + \frac{1}{2\sqrt{q-p}}\right\}\sqrt{\frac{\pi}{2}}\ [q \geqq p], = \left\{\frac{1}{2\sqrt{p+q}} - \frac{1}{2\sqrt{p-q}}\right\}\sqrt{\frac{\pi}{2}}$ $[q \leqq p]$ V. T. 177, N. 1.

22) $\int Sin^2 qx \,.\, Cos^3 px \frac{dx}{\sqrt{x}} = \frac{1}{8}\left\{-\frac{1}{2\sqrt{2q+3p}} + \frac{1}{\sqrt{3p}} - \frac{1}{2\sqrt{2q-3p}} - \frac{3}{2\sqrt{2q+p}} + \frac{3}{\sqrt{p}} - \right.$

$\left. - \frac{3}{2\sqrt{2q-p}}\right\}\sqrt{\frac{\pi}{2}}\ [2q > 3p], = \frac{1}{8}\left\{-\frac{1}{2\sqrt{2q+3p}} + \frac{1}{\sqrt{3p}} + \frac{1}{2\sqrt{3p-2q}} - \frac{3}{2\sqrt{2q+p}} + \right.$

$$+\frac{3}{\sqrt{p}}-\frac{3}{2\sqrt{2q-p}}\Big\}\sqrt{\frac{\pi}{2}}\,[3p>2q>p], =\frac{1}{8}\Big\{-\frac{1}{2\sqrt{2q+3p}}+\frac{1}{\sqrt{3p}}+\frac{1}{2\sqrt{3p-2q}}-$$

$$-\frac{3}{2\sqrt{2q+p}}+\frac{3}{\sqrt{p}}+\frac{3}{2\sqrt{p-2q}}\Big\}\sqrt{\frac{\pi}{2}}\,[p>2q] \text{ V. T. 177, N. 2.}$$

23) $\int Sin\, q x\,.\,Cos\, p x\,\frac{dx}{x\sqrt{x}}=\{\sqrt{p+q}+\sqrt{q-p}\}\sqrt{\frac{\pi}{2}}\,[q>p], =\sqrt{q\pi}\,[q=p], =$

$$=\{\sqrt{q+p}-\sqrt{p-q}\}\sqrt{\frac{\pi}{2}}\,[q<p] \text{ V. T. 177, N. 10.}$$

24) $\int Sin\, p x\,\frac{dx}{\sqrt[q]{x^{q-1}}}=\frac{1}{\sqrt[q]{p}}\Gamma\left(\frac{1}{q}\right) Sin\frac{\pi}{2q}$ V. T. 150, N. 1.

25) $\int Cos\, p x\,\frac{dx}{\sqrt[q]{x^{q-1}}}=\frac{1}{\sqrt[q]{p}}\Gamma\left(\frac{1}{q}\right) Cos\frac{\pi}{2q}$ V. T. 150, N. 2.

26) $\int Sin\, p x\,\frac{dx}{(q+rx)\sqrt{x}}=\frac{-\pi}{\sqrt{qr}}\,Sin\frac{pq}{r}+\frac{1}{q}\sqrt{\frac{\pi}{r}}\,.\sum_{1}^{\infty}\frac{1}{1^{n/2}}\,Sin\left(\frac{2n-1}{4}\pi\right).\left(\frac{2pq}{r}\right)^{n}$ (IV, 312).

27) $\int Cos\, p x\,\frac{dx}{(q+rx)\sqrt{x}}=\frac{\pi}{\sqrt{qr}}\,Cos\frac{pq}{r}+\frac{1}{q}\sqrt{\frac{\pi}{r}}\,.\sum_{1}^{\infty}\frac{(-1)^n}{1^{n/2}}\,Cos\left(\frac{2n-1}{4}\pi\right).\left(\frac{2pq}{r}\right)^{n}$ (IV, 312).

28) $\int Cos\,(2\sqrt{px})\,.\,(1-x)^{q-1}\,\frac{dx}{\sqrt{x}}=\mathrm{B}\left(\frac{1}{2},q\right)\sum_{0}^{\infty}\frac{(-1)^n}{1^{n/1}}\,\frac{p^n}{(q+\frac{1}{2})^{n/1}}$ (VIII, 514).

29) $\int Cos\left(\frac{\pi}{4}-px\right)\frac{dx\sqrt{x}}{q^2+x^2}=\frac{\pi}{2\sqrt{q}}\,e^{-pq}$ Liouville, P. 21, 71.

F. Alg. irrat. fract.; Circ. Dir. en num. polyn.; Circ. de x.

TABLE 178.

Lim. 0 et ∞.

1) $\int (Sin^2 qx - Sin^2 px)\,\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{p}}-\sqrt{\frac{\pi}{q}}\right)$ (IV, 310).

2) $\int (Sin^4 qx - Sin^4 px)\,\frac{dx}{\sqrt{x}}=\frac{1}{32}(8-\sqrt{2})\left(\sqrt{\frac{\pi}{p}}-\sqrt{\frac{\pi}{q}}\right)$ V. T. 178, N. 2.

3) $\int (Cos^2 qx - Sin^2 px)\,\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{p}}+\sqrt{\frac{\pi}{q}}\right)$ V. T. 177, N. 2 et T. 178, N. 1.

4) $\int (Cos^4 qx - Sin^4 px)\,\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{q}}+\sqrt{\frac{\pi}{p}}\right)+\frac{1}{16}\left(\sqrt{\frac{\pi}{2q}}-\sqrt{\frac{\pi}{2p}}\right)$
V. T. 177, N. 2 et T. 178, N. 2.

5) $\int (Cos^2 qx - Cos^2 px)\,\frac{dx}{\sqrt{x}}=\frac{1}{4}\left(\sqrt{\frac{\pi}{q}}-\sqrt{\frac{\pi}{p}}\right)$ V. T. 178, N. 1.

6) $\int (Cos^4 qx - Cos^4 px)\frac{dx}{\sqrt{x}} = \frac{1}{32}(8+\sqrt{2})\left(\sqrt{\frac{\pi}{q}} - \sqrt{\frac{\pi}{p}}\right)$ V. T. 177, N. 2 et T. 178, N. 2.

7) $\int \{Sin(q-x) + Cos(q-x)\}\frac{dx}{\sqrt{x}} = Sin\, q . \sqrt{2\pi}$ (IV, 311).

8) $\int (Sin\, x - x\, Cos\, x)\frac{dx}{x^2\sqrt{x}} = \frac{1}{3}\sqrt{2\pi}$ (IV, 311).

9) $\int \{Cos(px\sqrt{a}) + Sin(px\sqrt{a})\}\left(\frac{Sin\, x}{x}\right)^a \frac{dx}{\sqrt{x}} = \frac{\sqrt{2\pi}}{1^{a/2}}\sum_0^a (-1)^n \binom{a}{n}(a+p\sqrt{a}-2n)^{a-\frac{1}{2}}$

10) $\int \{Cos(px\sqrt{a}) - Sin(px\sqrt{a})\}\left(\frac{Sin\, x}{x}\right)^a \frac{dx}{\sqrt{x}} = \frac{\sqrt{2\pi}}{1^{a/2}}\sum_0^a (-1)^n \binom{a}{n}(a-p\sqrt{a}-2n)^{a-\frac{1}{2}}$

Dans 9) et 10) on a $0 \leqq 2a < 4p+1$ (IV, 311).

11) $\int (Cos\, px - Sin\, px)\frac{dx}{(q^2+x^2)\sqrt{x}} = \frac{\pi}{4q}e^{-pq}\sqrt{\frac{2}{q}}$ (IV, 312).

12) $\int (Cos\, px - Sin\, px)\frac{dx\sqrt{x}}{q^2+x^2} = \frac{\pi}{\sqrt{2q}}e^{-pq}$ V. T. 178, N. 11.

13) $\int (Cos\, px - Sin\, px)\frac{x\,dx\sqrt{x}}{q^2+x^2} = -\pi e^{-pq}\sqrt{\frac{q}{2}}$ (IV, 313).

14) $\int (Cos\, px - Sin\, px)\frac{dx\sqrt{x}}{(q^2+x^2)^2} = \left(p+\frac{1}{2q}\right)e^{-pq}\frac{\pi}{2q\sqrt{2q}}$ (IV, 313).

15) $\int (Cos\, px - Sin\, px)\frac{x\,dx\sqrt{x}}{(q^2+x^2)^2} = \left(\frac{1}{2q}-p\right)e^{-pq}\frac{\pi}{2\sqrt{2q}}$ (IV, 313).

F. Alg. irrat. fract.; Circ. Dir. en num.; Circ. de $x^a \pm x^{-a}$. TABLE 179. Lim. 0 et ∞.

1) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{dx}{\sqrt{x}} = e^{-2p}\sqrt{\frac{\pi}{2p}} =$ 2) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{dx}{\sqrt{x}}$ (VIII, 446).

3) $\int \frac{x-1}{x}Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{dx}{\sqrt{x}} = 0 =$ 4) $\int \frac{x+1}{x}Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{dx}{\sqrt{x}}$ (VIII, 446).

5) $\int Sin\left(p^2x+\frac{q^2}{x}\right)\frac{dx}{\sqrt{x}} = (Cos\, 2pq + Sin\, 2pq)\frac{1}{2p}\sqrt{2\pi}$ (VIII, 428).

6) $\int Sin\left(p^2x+\frac{q^2}{x}\right)\frac{dx}{x\sqrt{x}} = (Cos\, 2pq + Sin\, 2pq)\frac{1}{2q}\sqrt{2\pi}$ (VIII, 428).

7) $\int Cos\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{\sqrt{x}} = (Cos\, 2pq - Sin\, 2pq) \frac{1}{2p} \sqrt{2\pi}$ (VIII, 428).

8) $\int Cos\left(p^2 x + \frac{q^2}{x}\right) \frac{dx}{x\sqrt{x}} = (Cos\, 2pq - Sin\, 2pq) \frac{1}{2q} \sqrt{2\pi}$ (VIII, 428).

9) $\int \left(x - \frac{1}{x}\right) Sin\left\{p\left(x^2 - \frac{1}{x^2}\right)\right\} \frac{dx}{x} = 0 =$ 10) $\int \left(x + \frac{1}{x}\right) Cos\left\{p\left(x^2 - \frac{1}{x^2}\right)\right\} \frac{dx}{x}$ V. T. 179, N. 3, 4.

11) $\int Sin\left\{\frac{(px-q)^2}{x}\right\} \frac{dx}{\sqrt{x}} = \frac{1}{2p}\sqrt{2\pi} =$ 12) $\int Cos\left\{\frac{(px-q)^2}{x}\right\} \frac{dx}{\sqrt{x}}$ (VIII, 428).

13) $\int Sin\left\{\frac{(px-q)^2}{x}\right\} \frac{dx}{x\sqrt{x}} = \frac{1}{2q}\sqrt{2\pi} =$ 14) $\int Cos\left\{\frac{(px-q)^2}{x}\right\} \frac{dx}{x\sqrt{x}}$ (VIII, 428).

15) $\int Sin\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{3+x}{(1+x^2)^2} x^2\, dx \sqrt{x} = e^{-2p} \sqrt{2p\pi}$ (IV, 313).

16) $\int Cos\left\{p\left(x - \frac{1}{x}\right)\right\} \frac{3-x}{(1+x^2)^2} x^2\, dx \sqrt{x} = e^{-2p} \sqrt{2p\pi}$ (IV, 313).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. monôme. TABLE 180. Lim. 0 et ∞.

1) $\int Sin\{(sr+1)x\} . Sin\, srx \frac{dx}{x\, Sin\, rx} = \frac{1}{2} s\pi =$ 2) $\int Sin\{(sr-1)x\} . Sin\, srx \frac{dx}{x\, Sin\, rx}$ (H, 28).

3) $\int Sin^2\, srx \frac{dx}{x\, Sin\, rx} = s\pi =$ 4) $\int Sin^2\, srx \frac{Cos\, x\, dx}{x\, Sin\, rx}$ (H, 29).

5) $\int Sin\, 2srx \frac{Sin\, x\, dx}{x\, Sin\, rx} = 0$ (H, 29). 6) $\int Sin\,(p\, Tang\, 2x) \frac{Tg\, x\, dx}{x\, Tg\, 2x} = \frac{\pi}{2}(1 - e^{-p})$ (VIII, 388).

7) $\int \sqrt[3]{Sin\, x . Cos\, x} \frac{dx}{x\, Cos^2 x} = \sqrt[3]{4} . \sqrt[4]{27} . F'\left(Sin \frac{\pi}{12}\right)$ (VIII, 388).

8) $\int \frac{Sin\, x}{\sqrt[3]{Cos\, x}} \frac{dx}{x} = 3\sqrt[4]{27} . E'\left(Sin \frac{\pi}{12}\right) - \frac{3 + 3\sqrt{3}}{2\sqrt[4]{3}} F'\left(Sin \frac{\pi}{12}\right)$ (VIII, 388).

9) $\int \sqrt[3]{Sin\, x} \frac{dx}{x\, Cos\, x} = \sqrt[4]{27} . F'\left(Sin \frac{\pi}{12}\right) =$ 10) $\int \frac{Sin\, x}{\sqrt[3]{Cos^2 x}} \frac{dx}{x}$ (VIII, 388).

11) $\int \frac{Tg\, x}{\sqrt[3]{Cos^2 x}} \frac{dx}{x} = \sqrt[4]{27} . F'\left(Sin \frac{\pi}{12}\right) =$ 12) $\int \frac{Tg\, x}{\sqrt[3]{Cos^2 2x}} \frac{dx}{x}$ (VIII, 388).

13) $\int Sin^2\, srx . Sin\, x \frac{dx}{x^2\, Sin\, rx} = \frac{1}{2} s\pi =$ 14) $\int Sin^2\, srx . Sin^2 x \frac{dx}{x^3\, Sin\, rx}$ (H, 29).

15) $\int \frac{Cos\{(2a-1)x\}}{Cos x} \left(\frac{Sin x}{x}\right)^{2a} dx = (-1)^{a-1} \frac{2^{2a}-1}{1^{2a/1}} 2^{2a-1} \pi B_{2a-1}$

Hamilton, L. & E. Phil. Mag. 23, 360.

16) $\int \frac{Cos 2ax}{Cos x} Sin^{2a} x \frac{dx}{x^b} = 0 =$ 17) $\int \frac{Cos 2ax}{Cos x} Sin^{2a+1} x \frac{dx}{x^b}$

18) $\int \frac{Sin\{(2a-1)x\}}{Cos x} Sin^{2a+1} x \frac{dx}{x^b} = (-1)^{\frac{a-b-1}{2}} \frac{\pi}{2^{2a} 1^{b-1/1}} =$ 19) $2\int \frac{Cos 2ax}{Cos x} Sin^{2a+2} x \frac{dx}{x^b}$

20) $\int \frac{Cos 2ax}{Cos x} Sin^{2a+p+1} x \frac{dx}{x^b} = (-1)^{\frac{a-b-1}{2}} \frac{\pi}{2^{2a+p} 1^{b-1/1}} p^{b-1}$ $[p<1]$

Dans 16) à 20) on a $a>b$. Bronwin, L. & E. Phil. Mag. 24, 491.

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. bin. rat. et un fact. au num. TABLE 181. Lim. 0 et ∞.

1) $\int \frac{Sin x}{p \pm q Cos 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0 [p^2<q^2]$ (VIII, 386).

2) $\int \frac{Tang x}{p \pm q Cos 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0 [p^2<q^2]$ (VIII, 386).

3) $\int \frac{Tg x}{p \pm q Cos 4x} \frac{dx}{x} = \frac{\pi}{2\sqrt{p^2-q^2}} [p^2>q^2], = 0 [p^2<q^2]$ (VIII, 386).

4) $\int \frac{Sin x}{p^2+Tg^2 x} \frac{dx}{x} = \frac{\pi}{2p(1+p)} =$ 5) $\int \frac{Tg x}{p^2+Tg^2 x} \frac{dx}{x}$ (VIII, 389).

6) $\int \frac{Tg x}{p^2+Tg^2 2x} \frac{dx}{x} = \frac{\pi}{2p(1+p)}$ (VIII, 389*). 7) $\int \frac{Tg^3 x}{p^2+Tg^2 x} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1+p}$ (VIII, 389).

8) $\int \frac{Sin x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2pq} =$ 9) $\int \frac{Tg x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x}$ (VIII, 390).

10) $\int \frac{Tg x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2pq}$ (VIII, 390*).

11) $\int \frac{Sin^3 x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2p(p+q)}$ (VIII, 390).

12) $\int \frac{Sin x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4} \frac{p^2+q^2}{p^3 q^3} =$ 13) $\int \frac{Tg x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x}$ (VIII, 390).

14) $\int \frac{Tg x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x} = \frac{\pi}{4} \frac{p^2+q^2}{p^3 q^3}$ (VIII, 390*).

15) $\int \frac{Sin^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4p^3 q}$ (VIII, 390).

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16) $\int \frac{Sin\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

17) $\int \frac{Tg\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

18) $\int \frac{Tg\, x}{(p^2\, Sin^2\, 2x + q^2\, Cos^2\, 2x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^4 + 2p^2 q^2 + 3q^4}{p^5 q^5}$ (VIII, 391).

19) $\int \frac{Sin^3\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{p^2 + 3q^3}{p^5 q^3}$ (VIII, 390).

20) $\int \frac{Sin\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

21) $\int \frac{Tg\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

22) $\int \frac{Tg\, x}{(p^2\, Sin^2\, 2x + q^2\, Cos^2\, 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^6 + 3p^4 q^2 + 3p^2 q^4 + 5q^6}{p^7 q^7}$ (VIII, 391).

23) $\int \frac{Sin^3\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^4 + p^2 q^2 + 5q^4}{p^7 q^5}$ (VIII, 391).

24) $\int \frac{Sin^5\, x}{(p^2\, Sin^2\, x + q^2\, Cos^2\, x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^2 + 5q^2}{p^7 q^3}$ (VIII, 391).

25) $\int \frac{Sin\, x}{(1 + Sin\, \lambda . Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

26) $\int \frac{Tg\, x}{(1 + Sin\, \lambda . Cos\, 2x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

27) $\int \frac{Tg\, x}{(1 + Sin\, \lambda . Cos\, 4x)^{a+1}} \frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}} \frac{\pi}{2} \sum_0^\infty (-1)^n \frac{(n+1)^{n/1}}{(2a-1)^{n/-2}} \binom{a}{2n} \frac{1}{2^n} Sec^{2(a-n)+1} \lambda$ (VIII, 386).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. bin. rat. et plus. fact. au num. TABLE 182. Lim. 0 et ∞.

1) $\int \frac{Sin\, x . Tg^2\, x}{p^2 + Tg^2\, x} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1+p} =$ 2) $\int \frac{Tg^2\, 2x . Tg\, x}{p^2 + Tg^2\, 2x} \frac{dx}{x}$ (VIII, 389*).

3) $\int \frac{Sin\, x . Cos\, x}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} \frac{dx}{x} = \frac{\pi}{2q(p+q)} =$ 4) $\int \frac{Sin\, x . Cos^2\, x}{p^2\, Sin^2\, x + q^2\, Cos^2\, x} \frac{dx}{x}$ (VIII, 390).

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5) $\int \frac{Tg\,x \,.\, Cos^2 2x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x} = \frac{\pi}{2q(p+q)}$ (VIII, 390*).

6) $\int \frac{Sin^2 x \,.\, Tg\,x}{p^2 Sin^2 x + q^2 Cos^2 x} \frac{dx}{x} = \frac{\pi}{2p(p+q)} =$ 7) $4\int \frac{Sin^3 x \,.\, Cos\,x}{p^2 Sin^2 2x + q^2 Cos^2 2x} \frac{dx}{x}$ (VIII, 390).

8) $\int \frac{Sin\,x \,.\, Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4pq^3} =$ 9) $\int \frac{Sin\,x \,.\, Cos^2 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x}$ (VIII, 390).

10) $\int \frac{Tg\,x \,.\, Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x} = \frac{\pi}{4pq^3}$ (VIII, 390*).

11) $\int \frac{Sin^2 x \,.\, Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^2} \frac{dx}{x} = \frac{\pi}{4p^3 q} =$ 12) $4\int \frac{Sin^3 x \,.\, Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^2} \frac{dx}{x}$ (VIII, 390).

13) $\int \frac{Sin\,x \,.\, Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^2+q^2}{p^3 q^5} =$ 14) $\int \frac{Sin\,x \,.\, Cos^2 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x}$ (VIII, 391).

15) $\int \frac{Tg\,x \,.\, Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{3p^2+q^2}{p^3 q^5}$ (VIII, 391*).

16) $\int \frac{Sin^2 x \,.\, Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^3} \frac{dx}{x} = \frac{\pi}{16} \frac{p^2+3q^2}{p^5 q^3} =$ 17) $4\int \frac{Sin^3 x \,.\, Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^3} \frac{dx}{x}$ (VIII, 391).

18) $\int \frac{Sin\,x \,.\, Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^4+2p^2q^2+q^4}{p^5 q^7} =$ 19) $\int \frac{Sin\,x \,.\, Cos^2 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 391).

20) $\int \frac{Tg\,x \,.\, Cos^2 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^4+2p^2q^2+q^4}{p^5 q^7}$ (VIII, 391*).

21) $\int \frac{Sin^2 x \,.\, Tg\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^4+2p^2q^2+5q^4}{p^7 q^5} =$ 22) $4\int \frac{Sin^3 x \,.\, Cos\,x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x}$ (VIII, 391).

23) $\int \frac{Sin\,x \,.\, Cos^3 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^2+q^2}{p^3 q^7} =$ 24) $\int \frac{Sin\,x \,.\, Cos^4 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 392).

25) $\int \frac{Tg\,x \,.\, Cos^4 2x}{(p^2 Sin^2 2x + q^2 Cos^2 2x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{5p^2+q^2}{p^3 q^7}$ (VIII, 392).

26) $\int \frac{Sin^3 x \,.\, Cos\,x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x} = \frac{\pi}{32} \frac{p^2+q^2}{p^5 q^5} =$ 27) $\int \frac{Sin^3 x \,.\, Cos^2 x}{(p^2 Sin^2 x + q^2 Cos^2 x)^4} \frac{dx}{x}$ (VIII, 391).

28) $\int \frac{Tg\,x\,.\,Sin^2 4x}{(p^2\,Sin^2 2x + q^2\,Cos^2 2x)^4}\,\frac{dx}{x} = \frac{\pi}{8}\,\frac{p^2+q^2}{p^5 q^5}$ (VIII, 391*).

29) $\int \frac{Sin^4 x\,.\,Tg\,x}{(p^2\,Sin^2 x + q^2\,Cos^2 x)^4}\,\frac{dx}{x} = \frac{\pi}{32}\,\frac{p^2+5q^2}{p^7 q^3} =$ 30) $16\int \frac{Sin^5 x\,.\,Cos^3 x}{(p^2\,Sin^2 2x + q^2\,Cos^2 2x)^4}\,\frac{dx}{x}$ (VIII, 391).

31) $\int \frac{Cos^{2a} x\,.\,Cos\,2ax\,.\,Sin\,x}{p^2\,Sin^2 x + Cos^2 x}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^{2a-1}}{(1+p)^{2a}} =$ 32) $\int \frac{Cos^{2a-1} x\,.\,Cos\,2ax\,.\,Sin\,x}{p^2\,Sin^2 x + Cos^2 x}\,\frac{dx}{x}$ (VIII, 386).

33) $\int \frac{Cos^{2a} 2x\,.\,Cos\,4ax\,.\,Tg\,x}{p^2\,Sin^2 2x + Cos^2 2x}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^{2a-1}}{(1+p)^{2a}}$ (VIII, 386).

34) $\int \frac{Cos^a 2x\,.\,Sin\,x}{(1+Sin\,\lambda\,.\,Cos\,2x)^{a+1}}\,\frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}}\,\frac{\pi}{2}\,\frac{(-1)^a}{Sin^{a+1}\lambda}\,\sum_0^\infty (-1)^n\,\frac{(n+1)^{n/1}}{(2a-1)^{n/-2}}\,\binom{a}{2n}\,\frac{1}{2^n}\,Tg^{2(a-n)+1}\lambda$ (VIII, 386).

35) $\int \frac{Cos^a 2x\,.\,Tg\,x}{(1+Sin\,\lambda\,.\,Cos\,2x)^{a+1}}\,\frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}}\,\frac{\pi}{2}\,\frac{(-1)^a}{Sin^{a+1}\lambda}\,\sum_0^\infty (-1)^n\,\frac{(n+1)^{n/1}}{(2a-1)^{n/-2}}\,\binom{a}{2n}\,\frac{1}{2^n}\,Tg^{2(a-n)+1}\lambda$ (VIII, 386).

36) $\int \frac{Cos^a 4x\,.\,Tg\,x}{(1+Sin\,\lambda\,.\,Cos\,4x)^{a+1}}\,\frac{dx}{x} = \frac{1^{a/2}}{1^{a/1}}\,\frac{\pi}{2}\,\frac{(-1)^a}{Sin^{a+1}\lambda}\,\sum_0^\infty (-1)^n\,\frac{(n+1)^{n/1}}{(2a-1)^{n/-2}}\,\binom{a}{2n}\,\frac{1}{2^n}\,Tg^{2(a-n)+1}\lambda$ (VIII, 386).

F. Alg. rat. fract. à dén. monôme; Circ. Dir. en dén. bin. irr. et un fact. au num. TABLE 183. Lim. 0 et ∞.

1) $\int \frac{Sin\,x}{\sqrt{p \pm q\,Cos\,4x}}\,\frac{dx}{x} = \frac{1}{\sqrt{p+q}}\,F'\left(\sqrt{\frac{2q}{p+q}}\right) =$ 2) $\int \frac{Tg\,x}{\sqrt{p \pm q\,Cos\,4x}}\,\frac{dx}{x}$ (VIII, 388).

3) $\int \frac{Tg\,x}{\sqrt{p \pm q\,Cos\,8x}}\,\frac{dx}{x} = \frac{1}{\sqrt{p+q}}\,F'\left(\sqrt{\frac{2q}{p+q}}\right)$ (VIII, 389).

4) $\int \frac{Sin\,x}{\sqrt{1+Sin^2 x}}\,\frac{dx}{x} = \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\,\frac{\pi}{4}\right) =$ 5) $\int \frac{Tg\,x}{\sqrt{1+Sin^2 x}}\,\frac{dx}{x}$ (VIII, 396).

6) $\int \frac{Tg\,x}{\sqrt{1+Sin^2 2x}}\,\frac{dx}{x} = \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\,\frac{\pi}{4}\right)$ (VIII, 396*).

7) $\int \frac{Sin^3 x}{\sqrt{1+Sin^2 x}}\,\frac{dx}{x} = \sqrt{2}\,.\,E'\left(Sin\,\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\,\frac{\pi}{4}\right)$ (VIII, 396).

8) $\int \frac{Sin^3 x}{\sqrt{1+Cos^2 x}}\,\frac{dx}{x} = \sqrt{2}\,.\left\{F'\left(Sin\,\frac{\pi}{4}\right) - E'\left(Sin\,\frac{\pi}{4}\right)\right\}$ (VIII, 396).

9) $\int \frac{Sin\,x}{\sqrt{1+Cos^2 x}}\,\frac{dx}{x} = \sqrt{\frac{1}{2}}\,.\,F'\left(Sin\,\frac{\pi}{4}\right) =$ 10) $\int \frac{Tg\,x}{\sqrt{1+Cos^2 x}}\,\frac{dx}{x}$ (VIII, 393).

11) $\int \frac{Tg\,x}{\sqrt{1+Cos^2 2x}} \frac{dx}{x} = \sqrt{\frac{1}{2}} . F'\left(Sin\frac{\pi}{4}\right)$ (VIII, 396*).

12) $\int \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = F'(p) =$ 13) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x}$ (VIII, 393).

14) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = F'(p)$ (VIII, 393).

15) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2}\{F'(p) - E'(p)\}$ (VIII, 393).

16) $\int \frac{Sin^5 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{2+p^2}{3p^4} F'(p) - 2\frac{1+p^2}{3p^4} E'(p)$ (VIII, 394).

17) $\int \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p) =$ 18) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x}$ (VIII, 395).

19) $\int \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p)$ (VIII, 395*).

20) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} E'(p) - \frac{1}{p^2} F'(p)$ (VIII, 395).

21) $\int \frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = F'(p) =$ 22) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x}$ (VIII, 394).

23) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = F'(p)$ (VIII, 394).

24) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2}\{E'(p) - (1-p^2)F'(p)\}$ (VIII, 394).

25) $\int \frac{Sin^5 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4}\{2(2p^2-1)E'(p) + (2+3p^2)(1-p^2)F'(p)\}$ (VIII, 395).

26) $\int \frac{Sin\,x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p) =$ 27) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x}$ (VIII, 395).

28) $\int \frac{Tg\,x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{1-p^2} E'(p)$ (VIII, 395*).

29) $\int \frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2}\{F'(p) - E'(p)\}$ (VIII, 395).

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1) $\int \frac{Tg\,x \,.\, Cos\,4\,x}{\sqrt{p+q\,Cos\,4\,x}}\frac{dx}{x} = \frac{1}{q}\left\{\sqrt{p+q}\,.\,\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{p}{\sqrt{p+q}}\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

2) $\int \frac{Tg\,x \,.\, Cos\,8\,x}{\sqrt{p+q\,Cos\,8\,x}}\frac{dx}{x} = \frac{1}{q}\left\{\sqrt{p+q}\,.\,\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{p}{\sqrt{p+q}}\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

3) $\int \frac{Tg\,x \,.\, Cos\,4\,x}{\sqrt{p-q\,Cos\,4\,x}}\frac{dx}{x} = \frac{1}{q}\left\{\frac{p}{\sqrt{p+q}}\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \sqrt{p+q}\,.\,\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

4) $\int \frac{Tg\,x \,.\, Cos\,8\,x}{\sqrt{p-q\,Cos\,8\,x}}\frac{dx}{x} = \frac{1}{q}\left\{\frac{p}{\sqrt{p+q}}\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \sqrt{p+q}\,.\,\mathrm{E}'\left(\sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 389).

5) $\int \frac{Sin^2\,x \,.\, Tg\,x}{\sqrt{1+Sin^2\,x}}\frac{dx}{x} = \sqrt{2}\,.\,\mathrm{E}'\left(Sin\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.\,\mathrm{F}'\left(Sin\frac{\pi}{4}\right) =$ 6) $\int \frac{Tg\,x \,.\, Cos^2\,2\,x}{\sqrt{1+Cos^2\,2\,x}}\frac{dx}{x}$ (VIII, 396).

7) $\int \frac{Tg\,x \,.\, Cos^2\,2\,x}{\sqrt{1+Sin^2\,2\,x}}\frac{dx}{x} = \sqrt{2}\,.\left\{\mathrm{F}'\left(Sin\frac{\pi}{4}\right) - \mathrm{E}'\left(Sin\frac{\pi}{4}\right)\right\} =$ 8) $\int \frac{Sin^2\,x \,.\, Tg\,x}{\sqrt{1+Cos^2\,x}}\frac{dx}{x}$ (VIII, 396).

9) $\int \frac{Sin^2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,x}}\frac{dx}{x} = \frac{1}{p^2}\left\{\mathrm{F}'(p) - \mathrm{E}'(p)\right\}$ (VIII, 394).

10) $\int \frac{Sin^2\,4\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,2\,x}}\frac{dx}{x} = \frac{4}{3p^4}\left\{(2-p^2)\,\mathrm{E}'(p) - 2\,(1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 394*).

11) $\int \frac{Sin^4\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,x}}\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+p^2)\,\mathrm{F}'(p) - 2\,(1+p^2)\,\mathrm{E}'(p)\right\}$ (VIII, 394).

12) $\int \frac{Cos^2\,2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,2\,x}}\frac{dx}{x} = \frac{1}{p^2}\left\{\mathrm{E}'(p) - (1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 394).

13) $\int \frac{Cos^4\,2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,2\,x}}\frac{dx}{x} = \frac{1}{3p^4}\left\{(2+3p^2)\,(1-p^2)\,\mathrm{F}'(p) - (1-2p^2)\,\mathrm{E}'(p)\right\}$ (VIII, 394*).

14) $\int \frac{Sin^2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,x}^{\,3}}\frac{dx}{x} = \frac{1}{p^2(1-p^2)}\left\{\mathrm{E}'(p) - (1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 395).

15) $\int \frac{Cos^2\,2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,2\,x}^{\,3}}\frac{dx}{x} = \frac{1}{p^2}\left\{\mathrm{F}'(p) - \mathrm{E}'(p)\right\}$ (VIII, 395*).

16) $\int \frac{Sin^2\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Cos^2\,x}}\frac{dx}{x} = \frac{1}{p^2}\left\{\mathrm{E}'(p) - (1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 394).

17) $\int \frac{Sin^2\,4\,x \,.\, Tg\,x}{\sqrt{1-p^2\,Sin^2\,2\,x}}\frac{dx}{x} = \frac{4}{3p^4}\left\{(2-p^2)\,\mathrm{E}'(p) - 2\,(1-p^2)\,\mathrm{F}'(p)\right\}$ (VIII, 395*).

18) $\int \frac{Sin^4 x \,.\, Tg\,x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\}$ (VIII, 395).

19) $\int \frac{Cos^2 2x \,.\, Tg\,x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\}$ (VIII, 394*).

20) $\int \frac{Cos^4 2x \,.\, Tg\,x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+p^2)F'(p) - 2(1+p^2)E'(p)\}$ (VIII, 395*).

21) $\int \frac{Sin^2 x \,.\, Tg\,x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\}$ (VIII, 395).

22) $\int \frac{Cos^2 2x \,.\, Tg\,x}{\sqrt{1-p^2 Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \{E'(p) - (1-p^2)F'(p)\}$ (VIII, 396*).

1) $\int \frac{Sin\,x \,.\, Cos\,4x}{\sqrt{p+q\,Cos\,4x}} \frac{dx}{x} = \frac{1}{q} \left\{ \sqrt{p+q}\,.E'\left(\sqrt{\frac{2q}{p+q}}\right) - \frac{p}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) \right\}$ (VIII, 389).

2) $\int \frac{Sin\,x \,.\, Cos\,4x}{\sqrt{p-q\,Cos\,4x}} \frac{dx}{x} = \frac{1}{q} \left\{ \frac{p}{\sqrt{p+q}} F'\left(\sqrt{\frac{2q}{p+q}}\right) - \sqrt{p+q}\,.E'\left(\sqrt{\frac{2q}{p+q}}\right) \right\}$ (VIII, 389).

3) $\int \frac{Sin\,x \,.\, Cos\,x}{\sqrt{1+Sin^2 x}} \frac{dx}{x} = \sqrt{2}\,.\left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\} =$ 4) $\int \frac{Sin\,x \,.\, Cos^2 x}{\sqrt{1+Sin^2 x}} \frac{dx}{x}$ (VIII, 396).

5) $\int \frac{Sin^3 x \,.\, Cos\,x}{\sqrt{1+Sin^2 2x}} \frac{dx}{x} = \frac{1}{4} \left\{ \sqrt{2}\,.E'\left(Sin\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.F'\left(Sin\frac{\pi}{4}\right) \right\}$ (VIII, 396).

6) $\int \frac{Sin\,x \,.\, Cos\,x}{\sqrt{1+Cos^2 x}} \frac{dx}{x} = \sqrt{2}\,.E'\left(Sin\frac{\pi}{4}\right) - \sqrt{\frac{1}{2}}\,.F'\left(Sin\frac{\pi}{4}\right) =$ 7) $\int \frac{Sin\,x \,.\, Cos^2 x}{\sqrt{1+Cos^2 x}} \frac{dx}{x}$ (VIII, 396).

8) $\int \frac{Sin^3 x \,.\, Cos\,x}{\sqrt{1+Cos^2 2x}} \frac{dx}{x} = \frac{1}{2\sqrt{2}} \left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\}$ (VIII, 396).

9) $\int \frac{Sin\,x \,.\, Cos\,x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \{E'(p) - (1-p^2)F'(p)\} =$ 10) $\int \frac{Sin\,x \,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x}$ (VIII, 394).

11) $\int \frac{Sin\,x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\}$ (VIII, 394).

12) $\int \frac{Sin\,x \,.\, Cos^4 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+3p^2)(1-p^2)F'(p) - 2(1-2p^2)E'(p)\}$ (VIII, 394).

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13) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2) E'(p) - 2(1-p^2) F'(p)\} =$ 14) $\int \frac{Sin^3 x \,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x}$ (VIII, 394).

15) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \{F'(p) - E'(p)\}$ (VIII, 394).

16) $\int \frac{Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{48p^4} \{(2+p^2) F'(p) - 2(1+p^2) E'(p)\}$ (VIII, 394).

17) $\int \frac{Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\} =$ 18) $\int \frac{Sin\, x \,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x}$ (VIII, 395).

19) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{4p^2(1-p^2)} \{E'(p) - (1-p^2) F'(p)\}$ (VIII, 395).

20) $\int \frac{Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \{F'(p) - E'(p)\} =$ 21) $\int \frac{Sin\, x \,.\, Cos^2 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x}$ (VIII, 394).

22) $\int \frac{Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+p^2) F'(p) - 2(1+p^2) E'(p)\}$ (VIII, 395).

23) $\int \frac{Sin\, x \,.\, Cos^4 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2+p^2) F'(p) - 2(1+p^2) E'(p)\}$ (VIII, 395).

24) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2) E'(p) - 2(1-p^2) F'(p)\}$ (VIII, 395).

25) $\int \frac{Sin^3 x \,.\, Cos^2 x}{\sqrt{1-p^2 Cos^2 x}} \frac{dx}{x} = \frac{1}{3p^4} \{(2-p^2) E'(p) - 2(1-p^2) F'(p)\}$ (VIII, 395).

26) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \{E'(p) - (1-p^2) F'(p)\}$ (VIII, 394).

27) $\int \frac{Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{1}{48p^4} \{(2+3p^2)(1-p^2) F'(p) - 2(1-2p^2) E'(p)\}$ (VIII, 395).

28) $\int \frac{Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \{E'(p) - (1-p^2) F'(p)\} =$ 29) $\int \frac{Sin\, x \,.\, Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x}$ (VIII, 396).

30) $\int \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{4p^2} \{F'(p) - E'(p)\}$ (VIII, 395).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. en dén. prod. de bin. et mon. **TABLE 186.** Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{p^2 + Tg^2\, x} \frac{dx}{x\, Cos^2\, x} = \frac{\pi}{2p} =$ 2) $\int \frac{Sin\, x}{p^2 + Tg^2\, x} \frac{dx}{x\, Cos^3\, x}$ (VIII, 389).

3) $\int \frac{Tg\, x}{p^2 + Tg^2\, 2x} \frac{dx}{x\, Cos^2\, 2x} = \frac{\pi}{2p}$ (VIII, 389*).

4) $\int \frac{Sin\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x} = \frac{\pi}{2p} \frac{1-p^2}{1+p^2} =$ 5) $\int \frac{Tg\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

6) $\int \frac{Tg\, x}{Sin^2\, 2x + p^2\, Cos^2\, 2x} \frac{dx}{x\, Cos\, 4x} = \frac{\pi}{2p} \frac{1-p^2}{1+p^2}$ (VIII, 389*).

7) $\int \frac{Sin\, x\,.\, Cos\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x} = \frac{1}{2p} \frac{\pi}{1+p^2} =$ 8) $\int \frac{Sin\, x\,.\, Cos^2\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

9) $\int \frac{Tg\, x\,.\, Cos^2\, 2x}{Sin^2\, 2x + p^2\, Cos^2\, 2x} \frac{dx}{x\, Cos\, 4x} = \frac{1}{2p} \frac{\pi}{1+p^2}$ (VIII, 389*).

10) $\int \frac{Sin^3\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x} = -\frac{1}{2} \frac{p\pi}{1+p^2} =$ 11) $\int \frac{Sin^2\, x\,.\, Tg\, x}{Sin^2\, x + p^2\, Cos^2\, x} \frac{dx}{x\, Cos\, 2x}$ (VIII, 389).

12) $\int \frac{Sin^3\, x\,.\, Cos\, x}{Sin^2\, 2x + p^2\, Cos^2\, 2x} \frac{dx}{x\, Cos\, 4x} = -\frac{1}{8} \frac{p\pi}{1+p^2}$ (VIII, 389*).

F. Alg. rat. fract. à dén. monôme; $[p^2 < 1]$.
Circ. Dir. en dén. trinôme et un fact. au num.; **TABLE 187.** Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{1 - 2q\, Cos\, 2x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

2) $\int \frac{Tg\, x}{1 - 2q\, Cos\, 2x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

3) $\int \frac{Tg\, x}{1 - 2q\, Cos\, 4x + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q^2} [q^2 < 1], = \frac{\pi}{2} \frac{1}{q^2-1} [q^2 > 1]$ (VIII, 392).

4) $\int \frac{Sin\, ax}{1 - 2q\, Cos\, ax + q^2} \frac{dx}{x} = \frac{\pi}{2} \frac{1}{1-q} [q^2 < 1], = \frac{\pi}{2q} \frac{1}{q-1} [q^2 > 1]$ (VIII, 392*).

5) $\int \frac{Sin\, x}{s + q\, Sin^2\, x + r\, Cos^2\, x} \frac{dx}{x} = \frac{\pi}{2\sqrt{(s+q)(s+r)}} =$ 6) $\int \frac{Tg\, x}{s + q\, Sin^2\, x + r\, Cos^2\, x} \frac{dx}{x}$ (VIII, 390).

7) $\int \frac{Tg\, x}{s + q\, Sin^2\, 2x + r\, Cos^2\, 2x} \frac{dx}{x} = \frac{\pi}{2\sqrt{(s+q)(s+r)}}$ (VIII, 390).

8) $\int \frac{Sin^3\, x}{1 - 2p\, Cos\, 2x + p^2} \frac{dx}{x} = \frac{1}{4} \frac{\pi}{1+p}$ (VIII, 392).

F. Alg. rat. fract. à dén. monôme; $[p^2 < 1]$. Circ. Dir. en dén. trinôme et un fact. au num.; **TABLE 187, suite.** Lim. 0 et ∞.

9) $\int \frac{Sin\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{1}{2}\,\frac{\pi}{1-p^2} =$ 10) $\int \frac{Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x}$ (VIII, 535).

11) $\int \frac{Tg\,x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x} = \frac{1}{2}\,\frac{\pi}{1-p^2}$ (VIII, 535).

12) $\int \frac{Sin^3 x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{4(1-p^2)}$ (VIII, 535).

13) $\int \frac{Sin\,a\,r\,x}{1-2p\,Cos\,r\,x+p^2}\,\frac{dx}{x} = \frac{\pi}{4}\,\frac{1-p^a}{(1-p)^2}$ (H, 29).

14) $\int \frac{Sin\,x}{(1-2p\,Cos\,2x+p^2)^{a+1}}\,\frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}}\,\sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

15) $\int \frac{Tg\,x}{(1-2p\,Cos\,2x+p^2)^{a+1}}\,\frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}}\,\sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

16) $\int \frac{Tg\,x}{(1-2p\,Cos\,4x+p^2)^{a+1}}\,\frac{dx}{x} = \frac{\pi}{2(1-p^2)^{2a+1}}\,\sum_0^a \binom{a}{n}^2 p^{2n}$ (VIII, 387).

F. Alg. rat. fract. à dén. monôme; $[p^2 < 1]$. Circ. Dir. en dén. trin. et plus. fact. au num. avec $Tg\,x$.; **TABLE 188.** Lim. 0 et ∞.

1) $\int \frac{Sin^2 x\,.\,Tg\,x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{1}{4}\,\frac{\pi}{1+p} =$ 2) $\int \frac{Sin^2 2x\,.\,Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x}$ (VIII, 392).

3) $\int \frac{Sin^2 x\,.\,Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{4(1-p^2)}$ (VIII, 535).

4) $\int \frac{Cos^2 2x\,.\,Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{1}{4}\,\frac{\pi}{1-p}$ (VIII, 392*).

5) $\int \frac{Cos\,2ax\,.\,Tg\,x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^a}{1-p^2} =$ 6) $\int \frac{Cos\,4ax\,.\,Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x}$ (VIII, 386).

7) $\int \frac{Cos\,8ax\,.\,Tg\,x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^a}{1-p^2}$ (VIII, 534).

8) $\int \frac{Cos\{(2a+1)2x\}\,.\,Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = 0 =$ 9) $\int \frac{Cos\{(2a+1)4x\}\,.\,Tg\,x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x}$ (VIII, 534).

10) $\int \frac{Sin^2 x\,.\,Tg^{2a+1} x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{4}\,Sec\,a\pi\,.\left\{1-\left(\frac{1-p}{1+p}\right)^{2a+1}\right\} =$ 11) $\int \frac{Sin^3 x\,.\,Tg^{2a} x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x}$ (VIII, 387).

12) $\int \frac{Sin^3 x.Cos\,x.Tg^{2a} 2x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{16}\,Sec\,a\pi\,.\left\{1-\left(\frac{1-p}{1+p}\right)^{2a+1}\right\}$ (VIII, 387).

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13) $\int \frac{Sin^2 x . Tg^{2a+1} x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{8}\,\frac{Cos\{(a+1)\pi\}}{1+p}\,\frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

14) $\int \frac{Sin^3 x . Tg^{2a} x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{8}\,\frac{Cos\{(a+1)\pi\}}{1+p}\,\frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

15) $\int \frac{Sin^3 x . Cos\,x . Tg^{2a} 2x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x} = \frac{\pi}{32}\,\frac{Cos\{(a+1)\pi\}}{1+p}\,\frac{\{(1+\sqrt{p})^{2a+1}-(1-\sqrt{p})^{2a+1}\}^2}{(1-p)^{2a+1}}$ (VIII, 535).

16) $\int \frac{Cos^a 2x . Cos\,2ax . Tg\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{2(1-p^2)}\left(\frac{1+p}{2}\right)^a$ (VIII, 387*).

17) $\int \frac{Cos^a 2x . Cos\,2ax . Tg\,x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{a+2}}\,\frac{(1+\sqrt{p})^a+(1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

F. Alg. rat. fract. à dén. monôme; $[p^2<1]$. Circ. Dir. en dén. trin. et plus. fact. au num. sans $Tg\,x$.; TABLE 189. Lim. 0 et ∞.

1) $\int \frac{Sin\,x . Cos\,x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{1}{4}\,\frac{\pi}{1-p} =$ 2) $\int \frac{Sin\,x . Cos^2 x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x}$ (VIII, 392).

3) $\int \frac{Sin\,x . Cos^2 x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{1}{4}\,\frac{\pi}{1-p^2} =$ 4) $4\int \frac{Sin^3 x . Cos\,x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x}$ (VIII, 535).

5) $\int \frac{Sin\,x . Cos\,ax}{1-2p\,Cos\,x+p^2}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^{a-1}}{1-p}$ (VIII, 639).

6) $\int \frac{Sin\,x . Cos\,2ax}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{p^a}{1-p^2} =$ 7) $\int \frac{Sin\,x . Cos\,4ax}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x}$ (VIII, 386, 534).

8) $\int \frac{Sin\,x . Cos\{(2a+1)2x\}}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = 0$ (VIII, 534).

9) $\int \frac{Sin\,ax . Cos\,x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{4}\,\frac{-2+p^{\frac{1}{2}(a-1)}\{1+(-1)^{a-1}\}+p^{\frac{1}{2}a}\{1+(-1)^a\}}{(1-p)^2}$ (VIII, 639).

10) $\int \frac{Sin\,x . Cos\,ax}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{4}\,\frac{p^{\frac{1}{2}(a-1)}\{1+(-1)^{a-1}\}+p^{\frac{1}{2}a}\{1+(-1)^a\}}{(1-p)^2}$ (VIII, 639).

11) $\int \frac{Cos^{a-1} x . Cos\,ax . Sin\,x}{1-2x\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{2(1-p^2)}\left(\frac{1+p}{2}\right)^a =$ 12) $\int \frac{Cos^a x . Cos\,ax . Sin\,x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x}$ (VIII, 417).

13) $\int \frac{Cos^{a-1} x . Cos\,ax . Sin\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{a+2}}\,\frac{(1+\sqrt{p})^a+(1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

14) $\int \frac{Cos^a x \,.\, Cos\,a x \,.\, Sin\,x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{a+2}}\,\frac{(1+\sqrt{p})^a + (1-\sqrt{p})^a}{1-p^2}$ (VIII, 535).

15) $\int \frac{Cos^{2a} x \,.\, Sin\,2ax \,.\, Sin^2 x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x} = \frac{\pi}{p}\,\frac{(1+p)^{2a}-1}{2^{2a+3}} =$ 16) $\int \frac{Cos^{2a+1} x \,.\, Sin\,2ax \,.\, Sin^2 x}{1-2p\,Cos\,2x+p^2}\,\frac{dx}{x}$ (VIII, 387).

17) $\int \frac{Cos^{2a+1} 2x \,.\, Sin\,4ax \,.\, Sin^2 x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{p}\,\frac{(1+p)^{2a}-1}{2^{2a+4}}$ (VIII, 387).

18) $\int \frac{Cos^{2a} x \,.\, Sin\,2ax \,.\, Sin^2 x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{2a+4}}\,\frac{(1+\sqrt{p})^{2a} - (1-\sqrt{p})^{2a}}{(1+p)\sqrt{p}}$ (VIII, 535).

19) $\int \frac{Cos^{2a+1} x \,.\, Sin\,2ax \,.\, Sin^2 x}{1-2p\,Cos\,4x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{2a+4}}\,\frac{(1+\sqrt{p})^{2a} - (1-\sqrt{p})^{2a}}{(1+p)\sqrt{p}}$ (VIII, 535).

20) $\int \frac{Cos^{2a+1} 2x \,.\, Sin\,4ax \,.\, Sin^2 x}{1-2p\,Cos\,8x+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{2a+5}}\,\frac{(1+\sqrt{p})^{2a} - (1-\sqrt{p})^{2}}{(1+p)\sqrt{p}}$ (VIII, 535).

21) $\int Sin^s rx\,\frac{Sin(\frac{1}{2}s\pi - srx)}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{s+1}}(1-p)^{s-2}$ (H, 147).

22) $\int Sin^{s-1} rx\,\frac{Sin\{(s-1)\frac{1}{2}\pi - (s+1)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{-p\pi}{2^{s-1}}(1-p)^{s-3}$ (H, 169).

23) $\int Cos^s rx\,\frac{Sin\,srx}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{\pi}{2(1-p)^2}\{1-2^{-s}(1+p)^s\}$ (H, 145).

24) $\int Cos^{s-1} rx\,\frac{Sin\{(s+1)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{\pi}{2^s(1-p)^s}\{2^{s-1} - p(1+p)^{s-1}\}$ (H, 165).

25) $\int Sin^s rx \,.\, Cos^q rx\,\frac{Sin\{\frac{1}{2}s\pi - (q+s)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{\pi}{2^{q+s+1}}(1+p)^q(1-p)^{s-2}$ (H, 149).

26) $\int Sin^{s-1} rx \,.\, Cos^{q-1} rx\,\frac{Sin\{\frac{1}{2}(s-1)\pi - (q+s)rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x} = \frac{-p\pi}{2^{q+s-2}}(1+p)^{q-1}(1-p)^{s-3}$ (H, 168).

F. Alg. rat. fract. à dén. monôme; TABLE 190. Lim. 0 et ∞.
Circ. Dir. en dén. trin. Autre forme. $[p < 1, q < 1]$.

1) $\int \frac{1-p\,Cos\,x}{1-2p\,Cos\,x+p^2}\,Sin\,ax\,\frac{dx}{x} = \frac{\pi}{2}\,\frac{1-p^a}{1-p}$ (VIII, 639).

2) $\int \frac{1-q\,Cos\,rx - q^s\,Cos\,srx + q^{s+1}\,Cos\{(s-1)rx\}}{1-2q\,Cos\,rx+q^2}\,Sin\,x\,\frac{dx}{x} = \frac{\pi}{2}$ (H, 30).

3) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\,\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Sin\, x\, \frac{dx}{x^2} = \frac{\pi}{2}\, \frac{1-q^{s-1}}{1-q}$ (H, 30).

4) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\,\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Cos\, x\, \frac{dx}{x} = \frac{\pi}{2}\, \frac{1-q^{s-1}}{1-q}$ (H, 30).

5) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\,\{(s-1)rx\}}{1-2q\, Cos\, rx + q^2}\, Sin^2\, x\, \frac{dx}{x^3} = \frac{\pi}{2}\left\{\frac{1-q^{s-1}}{1-q} - \frac{1}{4}\right\}$ (H, 30).

6) $\int \frac{1}{1-2p\, Cos\, 2x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 418).

7) $\int \frac{1}{1-2p\, Cos\, 2x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 418).

8) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 2x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{1}{16}\, \frac{\pi}{1-pq}$ (VIII, 418).

9) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 2x + p^2}\, \frac{Cos^2\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{1}{16}\, \frac{\pi}{1-pq}$ (VIII, 418).

10) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq^2}{1-pq^2}$ (VIII, 535).

11) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq^2}{1-pq^2}$ (VIII, 535).

12) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1-pq^2)}$ (VIII, 536).

13) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos^2\, x}{1-2q\, Cos\, 2x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1-pq^2)}$ (VIII, 536).

14) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Sin\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 536).

15) $\int \frac{1}{1-2p\, Cos\, 4x + p^2}\, \frac{Tg\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{2(1-p^2)(1-q^2)}\, \frac{1+pq}{1-pq}$ (VIII, 536).

16) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1+q)(1-pq)}$ (VIII, 536).

17) $\int \frac{Sin^3\, x}{1-2p\, Cos\, 4x + p^2}\, \frac{Cos^2\, x}{1-2q\, Cos\, 4x + q^2}\, \frac{dx}{x} = \frac{\pi}{16(1+p)(1+q)(1-pq)}$ (VIII, 536).

18) $\int \frac{Sin\, rx - q^{s-1}\, Sin\, srx + q^s\, Sin\,\{(s-1)rx\}}{(1-2p\, Cos\, rx + p^2)(1-2q\, Cos\, rx + q^2)}\, \frac{dx}{x} = \frac{\pi}{2q(1-p)^2}\left\{\frac{1-q^s}{1-q} - \frac{1-p^s q^s}{1-pq}\right\}$ (H, 178).

1) $\int \frac{1}{Cos\,p\,x} \frac{dx}{q^2+x^2} = \infty$ (VIII, 564).

2) $\int \frac{Sin\,2\,s\,r\,x}{Sin\,r\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}} =$ 3) $\frac{2}{q}\int \frac{Sin^2\,s\,r\,x}{Sin\,r\,x} \frac{x\,dx}{q^2+x^2}$ (H, 87).

4) $\int Sin^{s-1}\,r\,x \frac{Sin(\frac{1}{2}s\pi - s\,r\,x)}{Cos\,r\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2^{1-s}}{e^{2qr}-e^{-2qr}} (1-e^{-2qr})^s$ (H, 148).

5) $\int Sin^{s-1}\,r\,x \frac{Cos(\frac{1}{2}s\pi - s\,r\,x)}{Cos\,r\,x} \frac{x\,dx}{q^2+x^2} = \pi \frac{2^{1-s}}{e^{2qr}-e^{-2qr}} (1-e^{-2qr})^s$ (H, 148).

6) $\int Cos^{s-1}\,r\,x \frac{Sin\,s\,r\,x}{Sin\,r\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2}{e^{2qr}-e^{-2qr}} \left\{1-2^{-s}(1+e^{-2qr})^s\right\}$ (H, 146).

7) $\int \frac{1-Cos^s\,r\,x\,.\,Cos\,s\,r\,x}{Sin\,2\,r\,x} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{2qr}-e^{-2qr}} \left\{1-2^{-s}(1+e^{-2qr})^s\right\}$ (H, 146).

8) $\int Cos^{s-2}\,r\,x \frac{Sin\{(s+1)\,r\,x\}}{Sin\,r\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{q} \frac{2^{2-s}}{e^{2qr}-e^{-2qr}} \left\{2^{s-1}-(1+e^{-2qr})^{s-1}e^{-2qr}\right\}$ (H, 165).

9) $\int Cos^{s-2}\,r\,x \frac{Cos\{(s+1)\,r\,x\}}{Sin\,r\,x} \frac{x\,dx}{q^2+x^2} = \pi \frac{2^{2-s}}{e^{2qr}-e^{-2qr}} \left\{2^{s-1}-(1+e^{-2qr})^{s-1}e^{-2qr}\right\}$ (H, 165).

10) $\int Cos(p\,Tg^2\,x) \frac{x}{Sin\,2\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{e^{2q}-e^{-2q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}}$ (VIII, 421*).

11) $\int Cos(p\,Tg^2\,x) \frac{x}{Tg\,2\,x} \frac{dx}{q^2+x^2} = \frac{\pi}{2} \left\{\frac{e^{2q}+e^{-2q}}{e^{2q}-e^{-2q}} e^{-p\frac{e^q-e^{-q}}{e^q+e^{-q}}} - e^{-p}\right\}$ (VIII, 421*).

12) $\int \frac{Sin\,2\,s\,r\,x}{Sin\,r\,x} \frac{dx}{4q^4+x^4} = \frac{\pi}{4q^3} \frac{(e^{qr}+e^{-qr})\,Sin\,q\,r + (e^{qr}-e^{-qr})\,Cos\,q\,r + e^{-(2s+1)qr}[Cos\{(2s-1)qr\}+Sin\{(2s-1)qr\}] - e^{-(2s-1)qr}[Sin\{(2s+1)qr\}+Cos\{(2s+1)qr\}]}{e^{2qr} - 2\,Cos\,2\,q\,r + e^{-2qr}}$ (H, 89).

13) $\int \frac{Sin^2\,s\,r\,x}{Sin\,r\,x} \frac{x\,dx}{4q^4+x^4} = \frac{\pi}{4q^2} \frac{(e^{qr}+e^{-qr})\,Sin\,q\,r - e^{-(2s-1)qr}\,Sin\{(2s+1)qr\} + e^{-(2s+1)qr}\,Sin\{(2s-1)qr\}}{e^{2qr} - 2\,Cos\,2\,q\,r + e^{-2qr}}$ (H, 89).

14) $\int \frac{Sin\,2\,s\,r\,x}{Sin\,r\,x} \frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{2q} \frac{(e^{qr}-e^{-qr})\,Cos\,q\,r - (e^{qr}+e^{-qr})\,Sin\,q\,r + e^{-(2s+1)qr}[Cos\{(2s-1)qr\}-Sin\{(2s-1)qr\}] - e^{-(2s-1)qr}[Cos\{(2s+1)qr\}-Sin\{(2s+1)qr\}]}{e^{2qr} - 2\,Cos\,2\,q\,r + e^{-2qr}}$ (H, 89).

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15) $\int \frac{Sin^2 srx}{Sin rx} \frac{x^3 dx}{4q^4+x^4} = \pi \frac{(e^{qr}-e^{-qr}) Cos qr - e^{-(2s-1)qr} Cos\{(2s+1)qr\} + e^{-(2s+1)qr} Cos\{(2s-1)qr\}}{e^{2qr} - 2 Cos 2qr + e^{-2qr}}$ (H, 89).

16) $\int \frac{x}{Sin px} \frac{dx}{q^2-x^2} = \infty =$ 17) $\int \frac{x}{Tg px} \frac{dx}{q^2-x^2}$ (VIII, 564).

18) $\int \frac{Sin 2srx}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{q} \frac{Sin^2 sqr}{Sin qr}$ (H, 130). 19) $\int \frac{Sin^2 srx}{Sin rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{4} \frac{Sin 2sqr}{Sin qr}$ (H, 130).

20) $\int Sin^{s-1} rx \frac{Sin(\frac{1}{2}s\pi - srx)}{Cos rx} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{Sin^{s-1} qr}{Cos qr} Cos\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

21) $\int Sin^{s-1} rx \frac{Cos(\frac{1}{2}s\pi - srx)}{Cos rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{2} \frac{Sin^{s-1} qr}{Cos qr} Sin\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

22) $\int Cos^{s-1} rx \frac{Sin srx}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{q Sin 2qr}(1 - Cos^s qr . Cos sqr)$ (H, 146).

23) $\int \frac{1 - Cos^s rx . Cos srx}{Sin 2rx} \frac{x dx}{q^2-x^2} = -\frac{\pi}{4} Cos^{s-1} qr \frac{Sin sqr}{Sin qr}$ (H, 146).

24) $\int Cos^{s-2} rx \frac{Sin\{(s+1)rx\}}{Sin rx} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{1}{Sin qr} \left\{1 - Cos^{s-1} qr Cos\{(s+1)qr\}\right\}$ (H, 166).

25) $\int Cos^{s-2} rx \frac{Cos\{(s+1)rx\}}{Sin rx} \frac{x dx}{q^2-x^2} = \frac{\pi}{2} Cos^{s-2} qr \frac{Sin\{(s+1)qr\}}{Sin qr}$ (H, 166).

26) $\int \frac{Sin 2srx}{Sin rx} \frac{dx}{q^4-x^4} = \frac{\pi}{2q^3} \left\{\frac{Sin^2 sqr}{Sin qr} + \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

27) $\int \frac{Sin^2 srx}{Sin rx} \frac{x dx}{q^4-x^4} = \frac{\pi}{8q^2} \left\{2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}} - \frac{Sin 2sqr}{Sin qr}\right\}$ (H, 131).

28) $\int \frac{Sin 2srx}{Sin rx} \frac{x^2 dx}{q^4-x^4} = \frac{\pi}{2q} \left\{\frac{Sin^2 sqr}{Sin qr} - \frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

29) $\int \frac{Sin^2 srx}{Sin rx} \frac{x^3 dx}{q^4-x^4} = -\frac{\pi}{8} \left\{\frac{Sin 2sqr}{Sin qr} + 2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right\}$ (H, 131).

F. Alg. rat. fract. à dén. bin. q^a+x^a; $[p^2<1]$. Circ. Dir. en dén. trin. et un fact. au num.; TABLE 192. Lim. 0 et ∞.

1) $\int \frac{1}{1-2p Cos rx + p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-p^2)} \frac{1+pe^{-qr}}{1-pe^{-qr}}$ (VIII, 494).

2) $\int \frac{Sin rx}{1-2p Cos rx + p^2} \frac{x dx}{q^2+x^2} = \frac{\pi}{2} \frac{1}{e^{qr}-p} [p^2<1], = \frac{\pi}{2} \frac{1}{pe^{qr}-1} [p^2>1]$ (VIII, 477).

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3) $$\int \frac{Sin\, r x}{1 - 2p\, Cos\, 2rx + p^2} \frac{x\,dx}{q^2 + x^2} = \frac{\pi}{2(1+p)} \frac{e^{qr}}{e^{2qr} - p} [p^2 < 1], = \frac{\pi}{2(1+p)} \frac{e^{qr}}{pe^{2qr} - 1} [p^2 > 1]$$ (VIII, 477).

4) $$\int \frac{Cos\, r x}{1 - 2p\, Cos\, rx + p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2q(1-p^2)} \frac{p + e^{-qr}}{1 - pe^{-qr}}$$ (VIII, 494).

5) $$\int \frac{Cos\, r x}{1 - 2p\, Cos\, 2rx + p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2q(1-p)} \frac{e^{-qr}}{1 - pe^{-2qr}}$$ (VIII, 536).

6) $$\int \frac{Sin\, r x}{1 - 2p\, Cos\, rx + p^2} \frac{x\,dx}{q^2 + x^2} = \frac{\pi}{2(1-p^2)} \frac{(1-p^2)e^{-qs} - p^{d+1}(e^{(s-dr-r)q} + e^{(dr+r-s)q}) + p^{d+2}(e^{(s-dr)q} - e^{(dr-s)q})}{1 - (e^{qr} + e^{-qr})p + p^2} \left[\begin{matrix} p \\ \text{fract.} \end{matrix}\right], = \frac{\pi}{2} \frac{e^{-qs} - p^d}{1 - (e^{qr} + e^{-qr})p + p^2} \left[\begin{matrix} p \\ \text{entier} \end{matrix}\right] \left[d = \mathcal{E}\, \frac{s}{r}\right]$$

7) $$\int \frac{Cos\, s x}{1 - 2p\, Cos\, rx + p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)e^{-qs} + p^{d+1}(e^{(s-dr-r)q} - e^{(dr+r-s)q}) - p^{d+2}(e^{(s-dr)q} - e^{(dr-s)q})}{1 - (e^{qr} + e^{-qr})p + p^2} \left[d = \mathcal{E}\, \frac{s}{r}\right]$$

Sur 5) et 6) voyez VIII, 494.

8) $$\int \frac{Sin\, s r x}{1 - 2p\, Cos\, rx + p^2} \frac{x\,dx}{q^2 + x^2} = \frac{\pi}{2} \frac{e^{-sqr} - p^s}{(1 - pe^{-qr})(1 - pe^{qr})}$$ (H, 92).

9) $$\int \frac{Cos\, s r x}{1 - 2p\, Cos\, rx - p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2q} \frac{1}{(1 - pe^{-qr})(1 - pe^{qr})} \left\{ e^{-sqr} - \frac{p^{s+1}}{1 - p^2} (e^{qr} - e^{-qr}) \right\}$$ (H, 91).

10) $$\int \frac{Sin^{2a+1} x}{1 - 2p\, Cos\, rx + p^2} \frac{x\,dx}{q^2 + x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+\cdot}(1-p^2)} \left\{ e^{-(2a+1)q} \left\{ (1 - e^{(2a+1)2q})(1 - e^{-2q})^{2a+1} - 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \right\} + (e^q - e^{-q})^{2a+1} \frac{2p}{e^{qr} - p} \right\} [r > 2a + 1], =$$

$$= \frac{(-1)^{a-1}\pi}{2^{2a+1}(1-p^2)} \left\{ e^{-(2a+1)q} \left\{ (1 - e^{(2a+1)2q})(1 - e^{-2q})^{2a+1} - 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \right\} + (e^q - e^{-q})^{2a+1} \frac{2p}{e^{(2a+1)q} - p} - 1 \right\} [r = 2a + 1]$$ (V, 73).

11) $$\int \frac{Cos^{2a} x}{1 - 2p\, Cos\, rx + p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{2a} q(1-p^2)} \left\{ (e^q + e^{-q})^{2a} \frac{p}{e^{qr} - p} + \frac{1}{2}\binom{2a}{a} + \sum_1^a \binom{2a}{n+a} e^{-2nq} \right\} [r \geqq 2a]$$ (V, 72).

12) $$\int \frac{Cos^{2a+1} x}{1 - 2p\, Cos\, rx + p^2} \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{2a+2} q(1-p^2)} \left\{ (e^q + e^{-q})^{2a+1} \frac{p}{e^{qr} - p} + \sum_0^a \binom{2a+1}{n+a+1} e^{-(2n+1)q} \right\} [r \geqq 2a + 1]$$ (V, 73).

13) $\int\frac{1}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3(1-p^2)}\,\frac{1+2pe^{-qr}\,Sin\,qr-p^2e^{-2qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 96).

14) $\int\frac{1}{1-2p\,Cos\,rx+p^2}\,\frac{x^2dx}{4q^4+x^4}=\frac{\pi}{4q(1-p^2)}\,\frac{1-2pe^{-qr}\,Sin\,qr-p^2e^{-2qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 96).

15) $\int\frac{Sin\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{4q^4+x^4}=\frac{\pi}{4q^2}\,\frac{e^{-qr}\,Sin\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 93).

16) $\int\frac{Sin\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x^3dx}{4q^4+x^4}=\frac{\pi}{2}\,\frac{e^{-qr}\,Cos\,qr}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 94).

17) $\int\frac{Sin\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{4q^4+x^4}=\frac{\pi}{4q^2}\,\frac{p^{s+1}(1-e^{-2qr})e^{-qr}Sin\,qr-pe^{-(s+1)qr}Sin\{(s+1)qr\}+}{(1-}$

$\frac{+(1+p^2)e^{-(s+2)qr}Sin\,sqr-pe^{-(s+3)qr}Sin\{(s-1)qr\}}{-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr})(p^2-2pe^{-qr}\,Cos\,qr+e^{-2qr})}$ (H, 96).

18) $\int\frac{Sin\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{x^3dx}{4q^4+x^4}=\frac{\pi}{2}\,\frac{1}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}\,\Big\{e^{-qr}\,\frac{1-p^{s-1}}{1-p}+$

$+\frac{(p^{s+1}e^{-qr}Cos\,qr-p^se^{-2qr})(1-e^{-2qr})-pe^{-(s+1)qr}Cos\{(s+1)qr\}+}{p^2-}$

$\frac{+(1+p^2)e^{-(s+2)qr}Cos\,sqr-pe^{-(s+3)qr}Cos\{(s-1)qr\}}{-2pe^{-qr}\,Cos\,qr+e^{-2qr}}\Big\}$ (H, 96).

19) $\int\frac{Cos\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3(1-p^2)}\,\frac{p(1-e^{-2qr})+(1-p^2)e^{-qr}\,Cos\,qr+}{1-}$

$\frac{+(1+p^2)e^{-qr}\,Sin\,qr}{-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 96).

20) $\int\frac{Cos\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{x^2dx}{4q^4+x^4}=\frac{\pi}{4q(1-p^2)}\,\frac{p(1-e^{-2qr})+(1-p^2)e^{-qr}\,Cos\,qr-}{1-}$

$\frac{-(1+p^2)e^{-qr}\,Sin\,qr}{-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 96).

21) $\int\frac{Cos\,srx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\,\frac{1}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}\,\Big\{\frac{p}{1-p^2}\,\frac{1-p^{s-1}}{1-p}$

$(1+2pe^{-qr}\,Sin\,qr-p^2e^{-2qr})+\frac{\{p^{s+1}e^{-qr}(Cos\,qr+Sin\,qr)-p^se^{-2qr}\}(1-e^{-2qr})-}{p^2-}$

$\frac{-pe^{-(s+1)qr}[Cos\{(s+1)qr\}+Sin\{(s+1)qr\}]+(1+p^2)e^{-(s+2)qr}\{Cos\,sqr+Sin\,sqr\}-}{-2pe^{-qr}\,Cos\,qr+}$

$\frac{-pe^{-(s+3)qr}[Cos\{(s-1)qr\}+Sin\{(s-1)qr\}]}{+e^{-2qr}}\Big\}$ (H, 97).

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22) $$\int \frac{Cos\, s r x}{1 - 2p\, Cos\, r x + p^2} \frac{x^2\, dx}{4q^4 + x^4} = \frac{\pi}{4q} \frac{1}{1 - 2p e^{-qr} Cos\, q r + p^2 e^{-2qr}} \left\{ \frac{p}{1-p^2} \frac{1 - p^{s-1}}{1-p} (1 - 2p e^{-qr} Sin\, q r - p^2 e^{-2qr}) + \frac{\{p^{s+1} e^{-qr}(Cos\, q r - Sin\, q r) - p^s e^{-2qr}\}(1 - e^{-2qr}) - p e^{-(s+1)qr}[Cos\{(s+1)qr\} - Sin\{(s+1)qr\}] + (1+p^2) e^{-(s+2)qr}(Cos\, s q r - Sin\, s q r) - p e^{-(s+3)qr}[Cos\{(s-1)qr\} - Sin\{(s-1)qr\}]}{p^2 - 2p e^{-qr} Cos\, q r + e^{-2qr}} \right\}$$ (H, 97).

23) $$\int \frac{Sin\, r x}{1 - 2p\, Cos\, r x + p^2} \frac{x\, dx}{1 + x^{2a}} = \frac{\pi}{2a} \frac{e^{-r}}{1 - p e^{-r}} - \frac{\pi}{a} \sum_{1}^{\frac{1}{2}(a-1)} e^{-r Cos \frac{n\pi}{a}} \frac{Cos \frac{2n\pi}{a} . Cos\left(r\, Sin \frac{n\pi}{a}\right) - p e^{-r Cos \frac{n\pi}{a}}}{1 - 2p e^{-r Cos \frac{n\pi}{a}} Cos\left(r\, Sin \frac{n\pi}{a}\right) + p^2 e^{-2r Cos \frac{n\pi}{a}}} - \frac{\pi}{a} \sum_{1}^{\frac{1}{2}(a-1)} e^{-r Cos \frac{n\pi}{a}} \frac{Sin \frac{2n\pi}{a} . Sin\left(r\, Sin \frac{n\pi}{a}\right)}{1 - 2p e^{-r Cos \frac{n\pi}{a}} Cos\left(r\, Sin \frac{n\pi}{a}\right) + p^2 e^{-2r Cos \frac{n\pi}{a}}} \left[\begin{matrix} a \\ \text{impair} \end{matrix}\right],$$

$$= \frac{\pi}{a} \sum_{1}^{\frac{1}{2}a-1} Cos\left(\frac{2n+1}{a}\pi\right) \frac{e^{-r Cos\left(\frac{2n+1}{2a}\pi\right)} Cos\left\{r\, Sin\left(\frac{2n+1}{2a}\pi\right)\right\} - p e^{-2r Cos\left(\frac{2n+1}{2a}\pi\right)}}{1 - 2p e^{-r Cos\left(\frac{2n+1}{2a}\pi\right)} Cos\left\{r\, Sin\left(\frac{2n+1}{2a}\pi\right)\right\} + p^2 e^{-2r Cos\left(\frac{2n+1}{2a}\pi\right)}} +$$

$$+ \frac{\pi}{a} \sum_{0}^{\frac{1}{2}a-1} e^{-r Cos\left(\frac{2n+1}{2a}\pi\right)} \frac{Sin\left\{r\, Sin\left(\frac{2n+1}{2a}\pi\right)\right\} . Sin\left(\frac{2n+1}{a}\pi\right)}{1 - 2p e^{-r Cos\left(\frac{2n+1}{2a}\pi\right)} Cos\left\{r\, Sin\left(\frac{2n+1}{2a}\pi\right)\right\} + p^2 e^{-2r Cos\left(\frac{2n+1}{2a}\pi\right)}}$$

$\left[\begin{matrix} a \\ \text{pair} \end{matrix}\right]$ (IV, 301).

1) $$\int \frac{1}{1 - 2p\, Cos\, r x + p^2} \frac{dx}{q^2 - x^2} = \frac{p\pi}{q(1-p^2)} \frac{Sin\, q r}{1 - 2p\, Cos\, q r + p^2}$$ (VIII, 504).

2) $$\int \frac{Sin\, r x}{1 - 2p\, Cos\, r x + p^2} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} \frac{p - Cos\, q r}{1 - 2p\, Cos\, q r + p^2}$$ (VIII, 505).

3) $$\int \frac{Sin\, r x}{1 - 2p\, Cos\, 2 r x + p^2} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} \frac{p-1}{p+1} \frac{Cos\, q r}{1 - 2p\, Cos\, 2 q r + p^2}$$ (VIII, 538).

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4) $$\int \frac{Sin\, s x}{1-2p\, Cos\, rx+p^2}\, \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2(1-p^2)}\, \frac{-(1-p^2)\, Cos\, qr + 2p^{d+1}\, Cos\, \{(dr+r-s)q\} - 2p^{d+2}\, Cos\, \{(s-dr)q\}}{1-2p\, Cos\, qr+p^2}$$ [s fract.], $$= -\frac{\pi p^d}{4(1-p^2)} - \frac{\pi}{4}\, \frac{p^d - Cos\, qr}{1-2p\, Cos\, qr+p^2}$$ [s entier]; $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

5) $$\int \frac{Sin\, s r x}{1-2p\, Cos\, rx+p^2}\, \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\, \frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr+p^2}$$ (H, 134).

6) $$\int \frac{Cos\, r x}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q}\, \frac{1+p^2}{1-p^2}\, \frac{Sin\, qr}{1-2p\, Cos\, qr+p^2}$$ (VIII, 504).

7) $$\int \frac{Cos\, r x}{1-2p\, Cos\, 2rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2p}\, \frac{1+p}{1-p}\, \frac{Sin\, qr}{1-2p\, Cos\, 2qr+p^2}$$ (VIII, 537).

8) $$\int \frac{Cos\, s x}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-p^2)}\, \frac{(1-p^2)\, Sin\, qs + 2p^{d+1}\, Sin\, \{(dr+r-s)q\} + 2p^{d+2}\, Sin\, \{(s-dr)q\}}{1-2p\, Cos\, qr+p^2}$$ $\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

9) $$\int \frac{Cos\, s r x}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-p^2)}\, \frac{(1-p^2)\, Sin\, sqr + 2p^{s+1}\, Sin\, qr}{1-2p\, Cos\, qr+p^2}$$ (H, 134).

10) $$\int \frac{1}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^4-x^4} = \frac{\pi}{4q^3(1-p^2)} \left\{ \frac{2p\, Sin\, qr}{1-2p\, Cos\, qr+q^2} + \frac{1+pe^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135*).

11) $$\int \frac{1}{1-2p\, Cos\, rx+p^2}\, \frac{x^2\,dx}{q^4-x^4} = \frac{\pi}{4q(1-p^2)} \left\{ \frac{2p\, Sin\, qr}{1-2p\, Cos\, qr+q^2} - \frac{1+pe^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135*).

12) $$\int \frac{Sin\, r x}{1-2p\, Cos\, rx+p^2}\, \frac{x\,dx}{q^4-x^4} = \frac{\pi}{4q^2} \left\{ \frac{p - Cos\, qr}{1-2p\, Cos\, qr+p^2} + \frac{e^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135).

13) $$\int \frac{Sin\, r x}{1-2p\, Cos\, rx+p^2}\, \frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{4} \left\{ \frac{p - Cos\, qr}{1-2p\, Cos\, qr+p^2} - \frac{e^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135).

14) $$\int \frac{Sin\, s r x}{1-2p\, Cos\, rx+p^2}\, \frac{x\,dx}{q^4-x^4} = \frac{\pi}{4q^2} \left\{ \frac{e^{-sqr} - p^s}{(1-pe^{-qr})(1-pe^{qr})} + \frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr+p^2} \right\}$$ (H, 136).

15) $$\int \frac{Sin\, s r x}{1-2p\, Cos\, rx+p^2}\, \frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{4} \left\{ \frac{p^s - Cos\, sqr}{1-2p\, Cos\, qr+p^2} + \frac{p^s - e^{-sqr}}{(1-pe^{-qr})(1-pe^{qr})} \right\}$$ (H, 136).

16) $$\int \frac{Cos\, r x}{1-2p\, Cos\, rx+p^2}\, \frac{dx}{q^4-x^4} = \frac{\pi}{4q^3(1-p^2)} \left\{ \frac{(1+p^2)\, Sin\, qr}{1-2p\, Cos\, qr+p^2} + \frac{p+e^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135*).

17) $$\int \frac{Cos\, r x}{1-2p\, Cos\, rx+p^2}\, \frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{4q(1-p^2)} \left\{ \frac{(1+p^2)\, Sin\, qr}{1-2p\, Cos\, qr+p^2} - \frac{p+e^{-qr}}{1-pe^{-qr}} \right\}$$ (H, 135*).

18) $$\int \frac{Cos\, s r x}{1 - 2p\, Cos\, r x + p^2}\, \frac{dx}{q^4 - x^4} = \frac{\pi}{4q^3(1-p^2)} \left\{ \frac{(1-p^2)e^{-sqr} - p^{s+1}(e^{qr} - e^{-qr})}{(1 - pe^{-qr})(1 - pe^{qr})} + \right.$$
$$\left. + \frac{(1-p^2)\, Sin\, sqr + 2p^{s+1}\, Sin\, qr}{1 - 2p\, Cos\, qr + p^2} \right\} \text{ (H, 136).}$$

19) $$\int \frac{Cos\, s r x}{1 - 2p\, Cos\, r x + p^2}\, \frac{x^2\, dx}{q^4 - x^4} = \frac{\pi}{4q(1-p^2)} \left\{ \frac{(1-p^2)\, Sin\, sqr + 2p^{s+1}\, Sin\, qr}{1 - 2p\, Cos\, qr + p^2} - \right.$$
$$\left. - \frac{(1-p^2)e^{-sqr} - p^{s+1}(e^{qr} - e^{-qr})}{(1 - pe^{-qr})(1 - pe^{qr})} \right\} \text{ (H, 136).}$$

1) $$\int \frac{Sin\, r x \,.\, Sin\, s x}{1 - 2p\, Cos\, r x + p^2}\, \frac{dx}{q^2 + x^2} = \frac{\pi}{4q}\, \frac{(e^{qr} - e^{-qr})e^{-qs} + p^d(e^{(s-dr-r)q} - e^{(dr+r-s)q}) -}{1 -}$$
$$\frac{- p^{d+1}(e^{(s-dr)q} - e^{(dr-s)q})}{- (e^{qr} + e^{-qr})p + p^2} \left[d = \mathcal{E}\frac{r}{s} \right] \text{ (VIII, 495).}$$

2) $$\int \frac{Sin\, t r x \,.\, Sin\, s r x}{1 - 2p\, Cos\, r x + p^2}\, \frac{dx}{q^2 + x^2} = \frac{\pi}{4q}\, \frac{1}{(1 - pe^{-qr})(1 - pe^{qr})} \left\{ \frac{p^{s+1}}{1-p^2}(p^t - p^{-t})(e^{qr} - e^{-qr}) - \right.$$
$$\left. - e^{-sqr}(e^{tqr} - e^{-tqr}) \right\} [t > s] \text{ (H, 92).}$$

3) $$\int \frac{Sin\, r x \,.\, Sin\, s x}{1 - 2p\, Cos\, 2 r x + p^2}\, \frac{dx}{q^2 + x^2} = \frac{\pi}{4q(1+p)}\, \frac{e^{-qs}(1+p)(e^{qr} - e^{-qr}) + p^d(e^{(s-2dr-r)q} -}{1 -}$$
$$\frac{- e^{(2dr+r-s)q}) - p^{d+1}(e^{(s-2dr+r)q} - e^{(2dr-r-s)q})}{- (e^{qr} + e^{-qr})p + p^2} \left[d = \mathcal{E}\frac{s}{2r} \right] \text{ (VIII, 537).}$$

4) $$\int \frac{Sin\, r x \,.\, Cos\, s x}{1 - 2p\, Cos\, r x + p^2}\, \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{4}\, \frac{(e^{-qr} - e^{qr})e^{-qs} + p^d(e^{(s-dr-r)q} + e^{(dr+r-s)q}) -}{1 -}$$
$$\frac{- p^{d+1}(e^{(s-dr)q} + e^{(dr-s)q})}{- (e^{qr} + e^{-qr})p + p^2} [s \text{ fractionn.}], = \frac{(e^{-qr} - e^{qr})e^{-qs} - (1-p^2)p^{d-1}}{1 - (e^{qr} + e^{-qr})p + p^2} [s \text{ entier}];$$
$$\left[d = \mathcal{E}\frac{s}{r} \right] \text{ (VIII, 495).}$$

5) $$\int \frac{Sin\, s x \,.\, Cos\, r x}{1 - 2p\, Cos\, r x + p^2}\, \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{4(1-p^2)}\, \frac{2(1-p^2)e^{-qs}(e^{qr} + e^{-qr}) - (1+p^2)}{1 -}$$
$$\frac{p^d(e^{(s-dr-r)q} + e^{(dr+r-s)q}) + (1+p^2)p^{d+1}(e^{(s-dr)q} + e^{(dr-s)q})}{- (e^{qr} + e^{-qr})p + p^2} [s \text{ fractionn.}], =$$
$$= \frac{\pi}{4}\, \frac{2e^{-qs}(e^{qr} + e^{-qr}) - (1+p^2)p^{d-1}}{1 - (e^{qr} + e^{-qr})p + p^2} [s \text{ entier}]; \left[d = \mathcal{E}\frac{s}{r} \right] \text{ (VIII, 494).}$$

6) $$\int \frac{Sin\, t r x \,.\, Cos\, s r x}{1 - 2p\, Cos\, r x + p^2}\, \frac{x\, dx}{q^2 + x^2} = \frac{\pi\{e^{-tqr}(e^{sqr} + e^{-sqr}) - p^t(p^s + p^{-s})\}}{4(1 - pe^{-qr})(1 - pe^{qr})} [t > s], =$$
$$= \frac{\pi\{e^{-sqr}(e^{tqr} - e^{-tqr}) + p^s(p^t - p^{-t})\}}{4(1 - pe^{-qr})(1 - pe^{qr})} [t < s] \text{ (H, 92).}$$

$$7)\int\frac{\operatorname{Sin} rx.\operatorname{Cos} sx}{1-2p\operatorname{Cos}2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8(1+p)}\,\frac{2e^{-qs}(1+p)(e^{-qr}-e^{qr})+p^{\frac12(d-1)}(1-p^2)[1-(-1)^d]+p^{\frac12 d}[1+(-1)^d](1-p)}{1-(e^{2qr}+e^{-2qr})p+p^2}\left[\begin{matrix}s\\ \text{entier}\end{matrix}\right],=\frac{\pi}{4(1+p)}\,\frac{e^{-qs}(1+p)(e^{-qr}-e^{qr})+p^d\left(e^{(s-2dr-r)q}-e^{(2dr+r-s)q}\right)-p^{d+1}\left(e^{(s-2dr+r)q}-e^{(2dr-r-s)q}\right)}{1-(e^{2qr}+e^{-2qr})p+p^2}\left[\begin{matrix}s\\ \text{fract.}\end{matrix}\right];$$

$$\left[d=\mathcal{E}\frac{s}{2r}\right]\ \text{(VIII, 537).}$$

$$8)\int\frac{\operatorname{Sin} sx.\operatorname{Cos} rx}{1-2p\operatorname{Cos}2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4(1-p)}\,\frac{2(1-p)e^{-qs}(e^{qr}+e^{-qr})-p^d\left(e^{(s-2dr-r)q}+e^{(2dr+r-s)q}\right)-p^{d+1}\left(e^{(s-2dr+r)q}+e^{(2dr-r-s)q}\right)}{1-(e^{2qr}+e^{-2qr})p+p^2}\left[\begin{matrix}s\\ \text{fract.}\end{matrix}\right],=\frac{\pi}{8}\,\frac{4e^{-qs}(e^{qr}+e^{-qr})-(1+p)p^{\frac12(d-1)}\{1+(-1)^d\}-(e^{qr}+e^{-qr})p^{\frac12 d}\{1+(-1)^{d+1}\}}{1-(e^{2qr}+e^{-2qr})p+p^2}\left[\begin{matrix}s\\ \text{entier}\end{matrix}\right];\left[d=\mathcal{E}\frac{s}{2r}\right]$$

$$\text{(VIII, 537).}$$

$$9)\int\frac{\operatorname{Cos} rx.\operatorname{Cos} sx}{1-2p\operatorname{Cos} rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q(1-p^2)}\,\frac{2(1-p^2)e^{-qs}(e^{qr}+e^{-qr})+(1+p^2)r^d\left(e^{(s-dr-r)q}-e^{(dr+r-s)q}\right)-(1+p^2)p^{d+1}\left(e^{(s-dr)q}-e^{(dr-s)q}\right)}{1-(e^{qr}+e^{-qr})p+p^2}\left[d=\mathcal{E}\frac{s}{r}\right]\ \text{(VIII, 494).}$$

$$10)\int\frac{\operatorname{Cos} trx.\operatorname{Cos} srx}{1-2p\operatorname{Cos} rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,\frac{1}{(1-pe^{-qr})(1-pe^{qr})}\left\{e^{-sqr}(e^{tqr}+e^{-tqr})-\frac{p^{s+1}}{1-p^2}(p^t+p^{-t})(e^{qr}-e^{-qr})\right\}[t>s]\ \text{(H, 92).}$$

$$11)\int\frac{\operatorname{Cos} rx.\operatorname{Cos} sx}{1-2p\operatorname{Cos}2rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q(1-p)}\,\frac{2(1-p)e^{-qs}(e^{qr}+e^{-qr})+p^d\left(e^{(s-2dr-r)q}-e^{(2dr+r-s)q}\right)-p^{d+1}\left(e^{(s-2dr+r)q}-e^{(2dr-r-s)q}\right)}{1-(e^{2qr}+e^{-2qr})p+p^2}\left[d=\mathcal{E}\frac{s}{2r}\right]\ \text{(VIII, 536).}$$

$$12)\int\frac{\operatorname{Sin}^{2a}x.\operatorname{Sin} rx}{1-2p\operatorname{Cos} rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}\,\frac{(e^q-e^{-q})^{2a}}{e^{qr}-p}[r>2a],=\frac{(-1)^a\pi}{2^{2a+1}}\left\{\frac{(e^q-e^{-q})^{2a}}{e^{2aq}-p}-1\right\}$$

$$[r=2a]\ \text{(V, 73).}$$

$$13)\int\frac{\operatorname{Sin}^{2a}x.\operatorname{Sin} rx}{1-2p\operatorname{Cos}2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}(1+p)}(e^q-e^{-q})^{2a}\,\frac{e^{qr}}{e^{2qr}-p}[r>2a],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}(1+p)}\left\{(e^q-e^{-q})^{2a}\,\frac{e^{qr}}{e^{2qr}-p}-1\right\}[r=2a]\ \text{(V, 89).}$$

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$$14)\int \frac{Sin^{2a}x\,.\,Sin\,sx}{1-2p\,Cos\,rx+p^2}\;\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}(e^q-e^{-q})^{2a}\frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p}\,[2s>4a<r],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p}-e^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}$$

$$\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\,[r>2s<4a, s\,\text{entier}],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\frac{e^{(r-s)q}-pe^{sq}}{e^{qr}-p}-$$

$$-e^{(2a-s)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\,[r>2s<4a, s\,\text{fract.}],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big[(e^q-e^{-q})^{2a}\Big\{e^{-qs}-p\frac{e^{qs}-e^{-qs}}{e^{(s+2a)q}-p}\Big\}+p\Big]\,[2r-4a=2s>r>4a],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{e^{-qs}-p\frac{e^{qs}-e^{-qs}}{e^{(s+2a)q}-p}\Big\}+p-e^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-$$

$$-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\,[2r-4a=2s<r<4a,\ s\ \text{entier}],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a}\Big\{e^{-qs}-p\frac{e^{qs}-e^{-qs}}{e^{(s+2a)q}-p}\Big\}+p-e^{(2a-s)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n$$

$$\binom{2a}{n}e^{2nq}\Big\}\,[2r-4a=2s<r<4a, s\,\text{fractionn.}];\Big[\text{partout } d=\mathcal{E}\Big(a-\frac{1}{2}s\Big)\Big];=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}$$

$$(e^q-e^{-q})^{2a}\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)-e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}\;\Big[r+2a<s>6a<\frac{3}{2}r\Big],=$$

$$=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)-e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}-pe^{(2a-r-s)q}$$

$$\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-pe^{(s-r-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\;[r+2a>s<2(r-a),$$

$$2s<3r, s-r\,\text{entier}],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{e^{(r-s)q}\Big(\frac{1}{e^{qr}-p}+p\Big)-e^{(s-r)q}\frac{p^2}{e^{qr}-p}\Big\}-$$

$$-pe^{(2a-r-s)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-pe^{(s-r-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\,[r+2a>s<2(r-a),$$

$$2s<3r, s-r\,\text{fractionn.}],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{pe^{(r-s)q}\frac{e^{qr}-2p}{e^{qr}-p}+\frac{e^{(s-r)q}}{e^{qr}-p}\Big\}+p^2\Big\}$$

$$[s=2(r-a)>6a],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{pe^{(r-s)q}\frac{e^{qr}-2p}{e^{qr}-p}+\frac{e^{(s-r)q}}{e^{qr}-p}\Big\}+$$

$$+p^2-pe^{(2a+r-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-pe^{(s-r-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\,[s=2(r-a)<6a,$$

$$s-r\ \text{entier}],=\frac{(-1)^a\pi}{2^{2a+1}(1-p^2)}\Big\{(e^q-e^{-q})^{2a}\Big\{pe^{(r-s)q}\frac{e^{qr}-2p}{e^{qr}-p}+\frac{e^{(s-r)q}}{e^{qr}-p}\Big\}+p^2-pe^{(2a+r-s)q}$$

$$\sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} - p e^{(s-r-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} [s=2(r-a)<6a, s-r \text{ fractionn.}];$$

$$\Big[\text{partout } d=\mathcal{E}\frac{1}{2}(2a-r-s)\Big]; = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} (e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-p e^{sq}}{e^{qr}-p} \Big[r-2a>s>$$

$$>2a<\frac{1}{2}r\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{(e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-p e^{sq}}{e^{qr}-p} + p e^{(2a+s-r)q} \sum_0^{d-1} (-1)^n$$

$$\binom{2a}{n} e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} [r-2a<s>2a, 2s>r, s-r \text{ entier}], =$$

$$= \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)} \Big\{(e^q-e^{-q})^{2a} \frac{e^{(r-s)q}-p e^{sq}}{e^{qr}-p} + p e^{(2a+s-r)q} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} +$$

$$+ p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} [r-2a<s>2a, 2s>r, s-r \text{ fractionn.}], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q} \frac{p^2}{e^{qr}-p}\Big\} - 1\Big\} \Big[s=2a<\frac{1}{2}r\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q} \frac{p^2}{e^{qr}-p}\Big\} - 1 + p e^{(2a+s-r)q} \sum_0^{d-1} (-1)^n \binom{2a}{n}$$

$$e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} \Big[s=2a>\frac{1}{2}s, s-r \text{ entier}\Big], = \frac{(-1)^a \pi}{2^{2a+1}(1-p^2)}$$

$$\Big\{(e^q-e^{-q})^{2a} \Big\{e^{(s-r)q}\Big(\frac{1}{e^{qr}-p}-p\Big) - e^{(r-s)q} \frac{p^2}{e^{qr}-p}\Big\} - 1 + p e^{(2a+s-r)q} \sum_0^d (-1)^n \binom{2a}{n}$$

$$e^{-2nq} + p e^{(r-s-2a)q} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big\} \Big[s=2a>\frac{1}{2}s, s-r \text{ fractionn.}\Big];$$

$$\Big[\text{partout } d=\mathcal{E}\frac{1}{2}(2a+s-r)\Big] \text{ (V, 74, 75, 82, 83).}$$

15) $$\int \frac{Sin^{2a+1}x . Cos\, rx}{1-2p\, Cos\, rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \Big\{p e^{-(2a+1)q} \Big\{(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1} -$$

$$-2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\Big\} + (e^q-e^{-q})^{2a+1} \frac{1+p^2}{e^{qr}-p}\Big\} [r>2a+1], =$$

$$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \Big\{(1+p^2)\Big\{\frac{(e^q-e^{-q})^{2a+1}}{e^{(2a+1)q}-p} - 1\Big\} + p e^{-(2a+1)q} \Big\{(1-e^{(2a+1)2q})$$

$$(1-e^{-2q})^{2a+1} - 2\sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq}\Big\}\Big\} [r=2a+1] \text{ (V, 73).}$$

16) $$\int \frac{Sin^{2a+1}x . Cos\, rx}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p} (e^q-e^{-q})^{2a+1} \frac{e^{qr}}{e^{2qr}-p} [r>2a+1], =$$

$$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p} \Big\{(e^q-e^{-q})^{2a+1} \frac{e^{qr}}{e^{2qr}-p} - 1\Big\} [r=2a+1] \text{ (V, 89).}$$

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17) $\int \frac{Sin^{2a+1}x \,.\, Cos sx}{1-2pCos rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} (e^q-e^{-q})^{2a+1} \frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p} [2s>4a+2<r], =$

$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \left\{ (e^q-e^{-q})^{2a+1} \frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p} - e^{(2a+1-s)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - \right.$

$\left. - e^{(s-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \right\} [r>2s<4a+2,\ s \text{ entier}], = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2}$

$\left\{ (e^q-e^{-q})^{2a+1} \frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p} - e^{(2a+1-s)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(s-2a-1)q} \sum_0^d (-1)^n \right.$

$\left. \binom{2a+1}{n} e^{2nq} \right\} [r>2s<4a+2,\ s \text{ fractionn.}], = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \left\{ (e^q-e^{-q})^{2a+1} \left(e^{-qs} + \right. \right.$

$\left. \left. + (e^{qs}+e^{-qs}) \frac{p}{e^{(s+2a+1)q}-p} \right) - p \right\} [4a+2>r<2s=2r-4a-2], = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2}$

$\left\{ (e^q-e^{-q})^{2a+1} \left(e^{-qs} + (e^{qs}+e^{-qs}) \frac{p}{e^{(s+2a+1)q}-p} \right) - p - e^{(2a+1-s)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} \right.$

$\left. e^{-2nq} - e^{(s-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \right\} [2r-4a-2=2s<r<4a+2,\ s \text{ entier}], =$

$= \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \left\{ (e^q-e^{-q})^{2a+1} \left(e^{-qs} + (e^{qs}+e^{-qs}) \frac{p}{e^{(s+2a+1)q}-p} \right) - p - e^{(2a+1-s)q} \right.$

$\left. \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{(s-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \right\} [2r-4a-2=2s<r<$

$<4a+2,\ s \text{ fractionn.}]; \left[\text{partout } d = \mathcal{E}\, \frac{1}{2}(2a+1-s) \right]; = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} (e^q-e^{-q})^{2a+1}$

$\left\{ e^{(r-s)q} \left(\frac{1}{e^{qr}-p} + p \right) + e^{(s-r)q} \frac{p^2}{e^{qr}-p} \right\} \left[r+2a+1<s>6a+3<\frac{3}{2}r \right], = \frac{(-1)^{a-1}}{2^{2a+2}}$

$\frac{\pi}{1-p^2} \left\{ (e^q-e^{-q})^{2a+1} \left\{ e^{(r-s)q} \left(\frac{1}{e^{qr}-p} + p \right) + e^{(s-r)q} \frac{p^2}{e^{qr}-p} \right\} - pe^{(2a+1+r-s)q} \sum_0^{d-1} (-1)^n \right.$

$\left. \binom{2a+1}{n} e^{-2nq} - pe^{(s-r-2a-1)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \right\} [r+2a+1>s<2r-2a-1,$

$2s>3r,\ s-r \text{ entier}], = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2} \left\{ (e^q-e^{-q})^{2a+1} \left\{ e^{(r-s)q} \left(\frac{1}{e^{qr}-p} + p \right) + \right. \right.$

$\left. \left. + e^{(s-r)q} \frac{p^2}{e^{qr}-p} \right\} - pe^{(2a+1+r-s)q} \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} - pe^{(s-r-2a-1)q} \sum_0^d (-1)^n \right.$

$\left. \binom{2a+1}{n} e^{2nq} \right\} [r+2a+1>s<2r-2a-1,\ 2s>3r,\ s-r \text{ fractionn.}], = \frac{(-1)^{a-1}}{2^{2a+2}} \frac{\pi}{1-p^2}$

$\left\{ (e^q-e^{-q})^{2a+1} \left(pe^{(r-s)q} + \frac{p^2 e^{(s-r)q} + e^{(r-s)q}}{e^{qr}-p} \right) - p^2 \right\} [s=2r-2a-1<6a+3], =$

$$=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\left(pe^{(r-s)q}+\frac{p^2e^{(s-r)q}+e^{(r-s)q}}{e^{qr}-p}\right)-p^2-pe^{(2a+1+r-s)q}\right.$$
$$\left.\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}\ [s=2r-2a-$$
$$-1<6a+3, s-r\text{ ent.}],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\left(pe^{(r-s)q}+\frac{p^2e^{(s-r)q}+e^{(r-s)q}}{e^{qr}-p}\right)-\right.$$
$$\left.-p^2-pe^{(2a+1+r-s)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(s-r-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}$$
$$[s=2r-2a-1<6a+3, s-r\text{ fract.}];\ \left[\text{partout } d=\mathcal{E}\,\frac{1}{2}\,(2a+1+r-s)\right];=\frac{(-1)^{a-1}}{2^{2a+2}}$$
$$\frac{\pi}{1-p^2}\,(e^q-e^{-q})^{2a+1}\,\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}\ \left[r-2a-1>s>2a+1<\frac{1}{2}r\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$
$$\left\{(e^q-e^{-q})^{2a+1}\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}-pe^{(2a+1+s-r)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$
$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}\ [r-2a-1<s>2a+1, 2s>r, s-r\text{ entier}],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$
$$\left\{(e^q-e^{-q})^{2a+1}\frac{pe^{qs}+e^{(r-s)q}}{e^{qr}-p}-pe^{(2a+1+s-r)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$
$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}[r-2a-1<s>2a+1, 2s>r, s-r\text{ fractionn.}],=\frac{(-1)^{a-1}}{2^{2a+2}}$$
$$\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1\right\}\ \left[s=2a+1<\frac{1}{2}r\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}$$
$$\left\{(e^q-e^{-q})^{2a+1}\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1-pe^{(2a+1+s-r)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\right.$$
$$\left.\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\right\}\ \left[s=2a+1>\frac{1}{2}r, s-r\text{ entier}\right],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p^2}\left\{(e^q-e^{-q})^{2a+1}\right.$$
$$\frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p}-1-pe^{(2a+1+s-r)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-pe^{(r-s-2a-1)q}\sum_0^d(-1)^n$$
$$\left.\binom{2a+1}{n}e^{2nq}\right\}\ \left[s=2a+1>\frac{1}{2}r, s-r\text{ fract.}\right];\ \left[\text{partout } d=\mathcal{E}\,\frac{1}{2}\,(2a+1-r+s)\right]$$

(V, 77, 78, 86, 87).

18) $$\int\frac{Cos^{2a}x\,.\,Cos\,rx}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q(1-p^2)}\left[(e^q+e^{-q})^{2a}\,\frac{1+p^2}{e^{qr}-p}+p\left\{\binom{2a}{a}+\right.\right.$$
$$\left.\left.+2\sum_1^a\binom{2a}{n+a}e^{-2nq}\right\}\right]\ [r\geqq 2a]\ \text{(V, 72*)}.$$

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$$19)\int \frac{Cos^{2a+1} x \,.\, Cos\, rx}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2a+2} q(1-p^2)} \left\{2p \sum_0^a \binom{2a+1}{n+a+1} e^{-(2n+1)q} + \right.$$

$$\left. + (e^q+e^{-q})^{2a+1} \frac{1+p^2}{e^{qr}-p}\right\} [r \geqq 2a+1] \text{ (V, 73).}$$

$$20)\int \frac{Cos^a x \,.\, Cos\, rx}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+1} q(1-p)} (e^q+e^{-q})^a \frac{e^{qr}}{e^{2qr}-p} [r \geqq a] \text{ (V, 88).}$$

$$21)\int \frac{Cos^a x \,.\, Cos\, sx}{1-2p\, Cos\, rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+1} q(1-p^2)} (e^q+e^{-q})^a \frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p} [2s \geqq 2a \leqq r], =$$

$$= \frac{\pi}{2^{a+1} q(1-p^2)} \left\{(e^q+e^{-q})^a \frac{e^{(r-s)q}+pe^{sq}}{e^{qr}-p} - e^{(a-s)q} \sum_0^d \binom{a}{n} e^{-2nq} + e^{(s-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right\}$$

$$\left[2a > 2s \leqq r,\, d = \mathcal{E}\frac{1}{2}(a-s)\right], = \frac{\pi}{2^{a+1} q(1-p^2)} (e^q+e^{-q})^a \left\{e^{(r-s)q}\left(\frac{1}{e^{qr}-p}+p\right) + \right.$$

$$\left. + e^{(s-r)q} \frac{p^2}{e^{qr}-p}\right\} [r+a \leqq s \leqq 2r-a \geqq 3a], = \frac{\pi}{2^{a+1} q(1-p^2)} \left[(e^q+e^{-q})^a \left\{e^{(r-s)q}\right.\right.$$

$$\left.\left.\left(\frac{1}{e^{qr}-p}+p\right) + e^{(s-r)q} \frac{p^2}{e^{qr}-p}\right\} - e^{(a+r-s)q} \sum_0^d \binom{a}{n} e^{-2nq} + e^{(s-r-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right]$$

$$\left[r+a > s \leqq 2r-a,\, 2s \leqq 3r,\, d = \mathcal{E}\frac{1}{2}(a+r-s)\right], = \frac{\pi}{2^{a+1} q(1-p^2)} (e^q+e^{-q})^a$$

$$\frac{pe^{sq}+e^{(r-s)q}}{e^{qr}-p} \left[r-a \geqq s \geqq a \leqq \frac{1}{2} r\right], = \frac{\pi}{2^{a+1} q(1-p^2)} \left\{(e^q+e^{-q})^a \frac{pe^{sq}+e^{(r-s)q}}{e^{qr}-p} - \right.$$

$$\left. - e^{(a+s-r)q} \sum_0^d \binom{a}{n} e^{-2nq} - e^{(r-s-a)q} \sum_0^d \binom{a}{n} e^{2nq}\right\} \left[r-a < s \geqq a,\, 2s \geqq 3r,\right.$$

$$\left. d = \mathcal{E}\frac{1}{2}(a+s-r)\right] \text{(V, 74, 80).}$$

$$22)\int Sin^s rx \frac{Sin\left(\frac{1}{2}s\pi - srx\right)}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}} \frac{(1-p)^s-(1-e^{-2qr})^s}{(1-pe^{-2qr})(1-pe^{2qr})} \text{ (H, 148).}$$

$$23)\int Sin^s rx \frac{Cos\left(\frac{1}{2}s\pi - srx\right)}{1-2p\, Cos\, 2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+1} q} \frac{2}{(1-pe^{-2qr})(1-pe^{2qr})} \left\{(1-e^{-2qr})^s - \right.$$

$$\left. - \frac{p}{1+p}(e^{2qr}-e^{-2qr})(1-p)^{s-1}\right\} \text{ (H, 148).}$$

$$24)\int Sin^{s-1} rx \frac{Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}}{1-2p\, Cos\, 2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^s} \frac{(1-e^{-2qr})^{s-1} e^{-2qr} - p(1-p)^{s-1}}{(1-pe^{-2qr})(1-pe^{2qr})}$$

(H, 169).

25) $\int Sin^{s-1} rx \frac{Cos\{(s-1)\frac{1}{2}\pi-(s+1)rx\}}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^s q}\frac{e^{-2qr}}{(1-pe^{-2qr})(1-pe^{2qr})}$
$\left\{(1-e^{-2qr})^{s-1}+\frac{p^2}{1+p}(1-p)^{s-1}(1-e^{4qr})\right\}$ (H, 169).

26) $\int \frac{Cos^s rx.Sin srx}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}}\frac{(1+e^{-2qr})^s-(1+p)^s}{(1-pe^{-2qr})(1-pe^{2qr})}$ (H, 146).

27) $\int \frac{Cos^s rx.Cos srx}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q}\frac{1}{(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+e^{-2qr})^s-\frac{p}{1-p}\right.$
$\left.(e^{2qr}-e^{-2qr})(1+p)^{s-1}\right\}$ (H, 146).

28) $\int \frac{Cos^{s-1} rx.Sin\{(s+1)rx\}}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^s}\frac{(1+e^{-2qr})^{s-1}e^{-2qr}-p(1+p)^{s-1}}{(1-pe^{-2qr})(1-pe^{2qr})}$ (H, 165).

29) $\int \frac{Cos^{s-1} rx.Cos\{(s+1)rx\}}{1-2p\,Cos 2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^s q}\frac{1}{(1-pe^{-2qr})(1-pe^{2qr})}\left\{(1+e^{-2qr})^{s-1}e^{-2qr}-\right.$
$\left.-\frac{2p^2}{1-p}(e^{2qr}-e^{-2qr})(1+p)^{s-2}\right\}$ (H, 165).

F. Alg. rat. fract. à dén. bin. q^2+x^2; $[p^2<1]$. Circ. Dir. en dén. trin. et plus. fact. au num.; TABLE 195. Lim. 0 et ∞.

1) $\int \frac{Sin^{2a+1}x.Sin rx.Sin sx}{1-2p\,Cos rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}\frac{e^{qs}-e^{-qs}}{e^{qr}-p}\,[s<r-2a-1],=$
$=\frac{(-1)^{a-1}\pi}{2^{2a+3}}\left\{(e^q-e^{-q})^{2a+1}\frac{e^{qs}-e^{-qs}}{e^{(s+2a+1)q}-p}-1\right\}[s=r-2a-1]$ (V, 79).

2) $\int \frac{Sin^{2a+1}x.Sin rx.Sin sx}{1-2p\,Cos 2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1+p}(e^q-e^{-q})^{2a+1}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$
$[s<r-2a-1],=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1+p}\left\{(e^q-e^{-q})^{2a+1}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}-1\right\}$
$[s=r-2a-1]$ (V, 90).

3) $\int \frac{Sin^{2a}x.Sin rx.Cos sx}{1-2p\,Cos rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}\frac{e^{qs}+e^{-qs}}{e^{qr}-p}\,[s<r-2a],=\frac{(-1)^a\pi}{2^{2a+2}}$
$\left\{(e^q-e^{-q})^{2a}\frac{e^{qs}+e^{-qs}}{e^{(s+2a)q}-p}-1\right\}[s=r-2a]$ (V, 76, 77).

4) $\int \frac{Sin^{2a}x.Sin sx.Cos rx}{1-2p\,Cos rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a}\left\{2pe^{-qs}-(e^{qs}-e^{-qs})\right.$
$\left.\frac{1+p^2}{e^{qr}-p}\right\}[2s>4a<r],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\left[(e^q-e^{-q})^{2a}(e^{-qs}-e^{qs})\frac{1+p^2}{e^{qr}-p}+2p\left\{(e^q-e^{-q})^{2a}\right.\right.$

$$e^{-qs}-e^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\Big]\;[r>2s<4a, s\text{ ent.}],=$$

$$=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big[(e^q-e^{-q})^{2a}(e^{-qs}-e^{qs})\frac{1+p^2}{e^{qr}-p}+2p\Big\{(e^q-e^{-q})^{2a}e^{-qs}-e^{(2a-s)q}$$

$$\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-e^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\Big]\;[r>2s<4a, s\text{ fractionn.}],=$$

$$=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+(1+p^2)\Big\}\;[2r-4a=$$

$$=2s>r>4a],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+$$

$$+(1+p^2)-2pe^{(2a-s)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2pe^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\;[2r-4a=$$

$$=2s<r<4a, s\text{ ent.}],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a}\Big(2pe^{-qs}-(e^{qs}-e^{-qs})\frac{1+p^2}{e^{(s+2a)q}-p}\Big)+$$

$$+(1+p^2)-2pe^{(2a-s)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-2pe^{(s-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big\}\;[2r-4a=$$

$$=2s<r<4a, s\text{ fractionn.}];\;\Big[d=\mathcal{E}\Big(a-\frac{1}{2}p\Big)\Big]\;\text{(V, 76).}$$

5) $$\int\frac{Sin^{2a}x\,.\,Sin\,rx\,.\,Cos\,sx}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+2}}\frac{\pi}{1+p}(e^q-e^{-q})^{2a}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$$

$$[s<r-2a],=\frac{(-1)^a}{2^{2a+2}}\frac{\pi}{1+p}\Big\{(e^q-e^{-q})^{2a}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}-1\Big\}\;[s=r-2a]$$

(V, 89).

6) $$\int\frac{Sin^{2a}x\,.\,Sin\,sx\,.\,Cos\,rx}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p}(e^q-e^{-q})^{2a}(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$$

$$[2s>4a<r,\text{ ou }r>2s<4a],=\frac{(-1)^{a-1}}{2^{2a+2}}\frac{\pi}{1-p}\Big\{(e^q-e^{-q})^{2a}(e^{qs}-e^{-qs})$$

$$\frac{e^{qr}}{e^{2qr}-p}-1\Big\}\;[s=r-2a,\text{ et }2s>r>4a\text{ ou }2s<r<4a]\;\text{(V, 89).}$$

7) $$\int\frac{Sin^{2a+1}x\,.\,Cos\,rx\,.\,Cos\,sx}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}(e^q-e^{-q})^{2a+1}\Big\{2pe^{-qs}+(e^{qs}+e^{-qs})$$

$$\frac{1+p^2}{e^{qr}-p}\Big\}\;[2s>4a+2<r],=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}+$$

$$+2p\Big\{e^{-qs}(e^q-e^{-q})^{2a+1}-e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}\sum_0^{d}(-1)^n$$

$\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$ $[r>2s<4a+2, s \text{ entier}]$, $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})$
$\frac{1+p^2}{e^{qr}-p}+2p\Big\{e^{-qs}(e^q-e^{-q})^{2a+1}-e^{(2a+1-s)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}$
$\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$ $[r>2s<4a+2, s \text{ fractionn.}]$, $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}$
$\Big(2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{(2a+1+s)q}-p}\Big)-(1+p^2)\Big\}$ $[4a+2<r<2s=2r-4a-2]$, $=$
$=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}\Big\{(e^q-e^{-q})^{2a+1}\Big(2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{(s+2a+1)q}-p}\Big)-(1+p^2)+$
$+2p\Big\{e^{(2a+1-s)q}(1-e^{-2q})^{2a+1}-e^{(2a+1-s)q}\sum_0^{d-1}(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}$
$\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$ $[4a+2>r>2s=2r-4a-2, s \text{ entier}]$, $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p^2}$
$\Big\{(e^q-e^{-q})^{2a+1}\Big(2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{(s+2a+1)q}-p}\Big)-(1+p^2)+2p\Big\{e^{(2a+1-s)q}$
$(1-e^{-2q})^{2a+1}-e^{(2a+1-s)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{-2nq}-e^{(s-2a-1)q}\sum_0^d(-1)^n\binom{2a+1}{n}e^{2nq}\Big\}\Big\}$
$[4a+2>r>2s=2r-4a-2, s \text{ fractionn.}]$; $\Big[d=\ \frac{1}{2}(2a+1-s)\Big]$ (V, 78, 79).

8) $\int\frac{Sin^{2a+1}x.Cos\,rx.Cos\,sx}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p}(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$
$[2s>4a+2<r \text{ ou } r>2s<4a+2]$, $=\frac{(-1)^{a-1}}{2^{2a+3}}\frac{\pi}{1-p}\Big\{(e^q-e^{-q})^{2a+1}(e^{qs}+e^{-qs})$
$\frac{e^{qr}}{e^{2qr}-p}-1\Big\}$ $[s=r-2a-1, \text{ et } 2s>r>4a+2 \text{ ou } 2s<r<4a+2]$ (V, 90).

9) $\int\frac{Cos^a x.Sin\,rx.Sin\,sx}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a\frac{e^{qs}-e^{-qs}}{e^{qr}-p}$ $[s\leqq r-a]$ (V, 74).

10) $\int\frac{Cos^a x.Sin\,rx.Sin\,sx}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q(1+p)}(e^q+e^{-q})^a(e^{qs}-e^{-qs})\frac{e^{qr}}{e^{2qr}-p}$ $[s\leqq r-a]$ (V, 89).

11) $\int\frac{Cos^a x.Cos\,rx.Cos\,sx}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q(1-p^2)}(e^q+e^{-q})^a\Big\{2pe^{-qs}+(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}\Big\}$
$[2s\geqq 2a\leqq r]$, $=\frac{\pi}{2^{a+2}q(1-p^2)}\Big\{(e^q+e^{-q})^a(e^{qs}+e^{-qs})\frac{1+p^2}{e^{qr}-p}+2p\Big\{(e^q+e^{-q})^a e^{-qs}-$
$-e^{(a-s)q}\sum_0^d\binom{a}{n}e^{-2nq}+e^{(s-a)q}\sum_0^d\binom{a}{n}e^{2nq}\Big\}\Big\}$ $\Big[2a>2s\leqq r, d=\mathcal{E}\frac{1}{2}(a-s)\Big]$ (V, 74).

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12) $\int \frac{Cos^a x \,.\, Cos\, r x \,.\, Cos\, s x}{1-2p\,Cos\,2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2} q(1-p)} (e^q+e^{-q})^a (e^{qs}+e^{-qs}) \frac{e^{qr}}{e^{2qr}-p}$
$[2s \geqq 2a \leqq r$ ou $2a > 2s \leqq r]$ (V, 89).

13) $\int Sin^s rx \,.\, Cos^t rx \frac{Sin\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+t+1}} \frac{(1+p)^{t-1}(1-p)^{s-1} - (1+e^{-2qr})^t(1-e^{-2qr})^s}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 150).

14) $\int Sin^s rx \,.\, Cos^t rx \frac{Cos\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+t+1} q} \frac{(1+e^{-2qr})^t(1-e^{-2qr})^s - (e^{2qr}-e^{-2qr})p(1+p)^{t-1}(1-p)^{s-1}}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 150).

15) $\int Sin^{s-1} rx \,.\, Cos^{t-1} rx \frac{Sin\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+t-1}}$
$\frac{(1+e^{-2qr})^{t-1}(1-e^{-2qr})^{s-1}e^{-2qr} - p(1+p)^{t-1}(1-p)^{s-1}}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 168).

16) $\int Sin^{s-1} rx \,.\, Cos^{t-1} rx \frac{Cos\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\,Cos\,2rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi e^{-2qr}}{2^{s+t-1} q}$
$\frac{(1+e^{-2qr})^{t-1}(1-e^{-2qr})^{s-1} + p^2(1+p)^{t-2}(1-p)^{s-2}(1-e^{4qr})}{(1-pe^{-qr})(1-pe^{qr})}$ (H, 168).

F. Alg. rat. fract. à dén. bin. q^a+x^a; $[p^2<1]$. Circ. Dir. en dén. trin. et fonct. polyn. au num.; TABLE 196. Lim. 0 et ∞.

1) $\int \frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2} \frac{dx}{q^2+x^2} = \frac{\pi}{2q} \frac{1}{e^{qr}-p} [p^2<1], = \frac{\pi}{2q} \frac{1}{e^{-qr}-p} [p^2>1]$ (VIII, 584).

2) $\int \frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2} \frac{dx}{4q^4+x^4} = \frac{\pi}{8q^3} e^{-qr} \frac{Cos\,qr+Sin\,qr-pe^{-qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 93).

3) $\int \frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2} \frac{x^2\,dx}{4q^4+x^4} = \frac{\pi}{4q} e^{-qr} \frac{Cos\,qr-Sin\,qr-pe^{-qr}}{1-2pe^{-qr}\,Cos\,qr+p^2e^{-2qr}}$ (H, 94).

4) $\int \frac{Cos\,rx-p}{1-2p\,Cos\,rx+p^2} \frac{dx}{1+x^{2a}} = \frac{\pi}{2a} \frac{e^{-r}}{1-pe^{-r}} - \frac{\pi}{a} \sum_{1}^{\frac{1}{2}(a-1)} e^{-r\,Cos\frac{n\pi}{a}} \frac{Sin\frac{n\pi}{a} \,.\, Sin\left(r\,Sin\frac{n\pi}{a}\right)}{1-2pe^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)+p^2e^{-2r\,Cos\frac{n\pi}{a}}} - \frac{\pi}{a} \sum_{1}^{\frac{1}{2}(a-1)} Cos\frac{n\pi}{a} \frac{e^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)-pe^{-2r\,Cos\frac{n\pi}{a}}}{1-2pe^{-r\,Cos\frac{n\pi}{a}}Cos\left(r\,Sin\frac{n\pi}{a}\right)+p^2e^{-2r\,Cos\frac{n\pi}{a}}} \left[\begin{matrix}a\\ \text{impair}\end{matrix}\right], =$

$$=\frac{\pi}{a}\sum_{1}^{\frac{1}{2}a-1} e^{-r\,Cos\left(\frac{2n+1}{2a}\pi\right)} \frac{Sin\left\{r\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}.\,Sin\left(\frac{2n+1}{2a}\pi\right)}{1-2pe^{-r\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{r\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\,Cos\left(\frac{2n+1}{2a}\pi\right)}}+$$

$$+\frac{\pi}{a}\sum_{1}^{\frac{1}{2}a-1} Cos\left(\frac{2n+1}{2a}\pi\right) \frac{e^{-r\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{r\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}-pe^{-2r\,Cos\left(\frac{2n+1}{2a}\pi\right)}}{1-2pe^{-r\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{r\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+p^2e^{-2r\,Cos\left(\frac{2n+1}{2a}\pi\right)}}$$

$\left[\begin{matrix}a\\ \text{pair}\end{matrix}\right]$ (IV, 302).

5) $\displaystyle\int\frac{1-p\,Cos\,rx-p^a\,Cos\,arx+p^{a+1}\,Cos\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}$ (VIII, 492).

6) $\displaystyle\int\frac{Sin\,rx-p^{a-1}\,Sin\,arx+p^a\,Sin\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{e^{-qr}-p^{a-1}e^{-aqr}}{1-pe^{-qr}}$ (VIII, 493).

7) $\displaystyle\int\frac{Sin\,rx-p^{a-1}\,Sin\,arx+p^a\,Sin\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{Sin\,sx\,dx}{q^2+x^2}=\frac{\pi}{4pq}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}-\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$

$\displaystyle[s\geqq(a-1)r],=\frac{\pi}{4pq}\left\{(e^{qs}-e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+\right.$

$\displaystyle\left.+e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}\left[s<(a-1)r,d=\mathcal{E}\,\frac{s}{r}\right]$ (VIII, 493).

8) $\displaystyle\int\frac{1-p\,Cos\,rx-p^a\,Cos\,arx+p^{a+1}\,Cos\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,Sin\,sx\,dx}{q^2+x^2}=\frac{\pi}{4}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}+\right.$

$\displaystyle\left.+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}[s>(a-1)r],=\frac{\pi}{4}e^{-qs}\left\{\frac{1-p^{a-1}e^{(a-1)qr}}{1-pe^{qr}}+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}$

$\displaystyle[s=(a-1)r],=\frac{\pi}{4}(e^{-qs}-e^{qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}+\frac{\pi}{4}e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+$

$\displaystyle+\frac{\pi}{4}e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}$ $[s<(a-1)r$, fract.], $\displaystyle=\frac{\pi}{4}(e^{-qs}-e^{qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}+$

$\displaystyle+\frac{\pi}{4}e^{qs}\frac{1-p^de^{-dqr}}{1-pe^{-qr}}+\frac{\pi}{4}e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}$ $[s<(a-1)r$, ent.]; $\left[d=\mathcal{E}\,\frac{s}{r}\right]$

(VIII, 493).

9) $\displaystyle\int\frac{1-p\,Cos\,rx-p^a\,Cos\,arx+p^{a+1}\,Cos\{(a-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{Cos\,sx\,dx}{q^2+x^2}=\frac{\pi}{4q}e^{-qs}\left\{\frac{1-p^ae^{aqr}}{1-pe^{qr}}+\right.$

$\displaystyle\left.+\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}\right\}[s\geqq(a-1)r],=\frac{\pi}{4q}\left\{(e^{qs}+e^{-qs})\frac{1-p^ae^{-aqr}}{1-pe^{-qr}}-\right.$

$\displaystyle\left.-e^{qs}\frac{1-p^{d+1}e^{-(d+1)qr}}{1-pe^{-qr}}+e^{-qs}\frac{1-p^{d+1}e^{(d+1)qr}}{1-pe^{qr}}\right\}\left[s<(a-1)r,d=\mathcal{E}\,\frac{s}{r}\right]$

(VIII, 492).

10) $\int \frac{Sin\, rx - p^{a-1} Sin\, arx + p^a Sin\{(a-1)rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{x\, Cos\, sx\, dx}{q^2 + x^2} = \frac{\pi}{4p} e^{-qs} \left\{ \frac{1 - p^a e^{-aqs}}{1 - pe^{-qs}} - \frac{1 - p^a e^{aqs}}{1 - pe^{qs}} \right\}$

$[s > (a-1)r], = \frac{\pi}{4p} e^{-qs} \left\{ \frac{1 - p^{a-1} e^{(1-a)qr}}{1 - pe^{-qr}} - \frac{1 - p^{a-1} e^{(a-1)qr}}{1 - pe^{qr}} + p^{a-1} e^{-2qr} \right\} [s = (a-1)r], =$

$= \frac{\pi}{4p} \left\{ (e^{qs} + e^{-qs}) \frac{1 - p^a e^{-aqr}}{1 - pe^{-qr}} - e^{qs} \frac{1 - p^{d+1} e^{-(d+1)qr}}{1 - pe^{-qr}} - e^{-qs} \frac{1 - p^{d+1} e^{(d+1)qr}}{1 - pe^{qr}} \right\}$

$[s > (a-1)\, r$, fractionnaire$], = \frac{\pi}{4p} \left\{ (e^{qs} + e^{-qs}) \frac{1 - p^a e^{-aqr}}{1 - pe^{-qr}} - e^{qs} \frac{1 - p^d e^{-dqr}}{1 - pe^{-qr}} - \right.$

$\left. - e^{-qs} \frac{1 - p^{d+1} e^{(d+1)qr}}{1 - pe^{qr}} \right\} \left[s < (a-1)\, r, \text{ entier} \right]; \left[d = \mathcal{E} \frac{s}{r} \right]$ (VIII, 493).

11) $\int \frac{Sin\{(a+1)2rx\} - p\, Sin\{(2a+1)rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{x\, Sin^{2a} rx\, dx}{q^2 + x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-qr} \frac{(1 - e^{-2qr})^{2a}}{e^{qr} - p}$ (V, 60*).

12) $\int \frac{Cos\{(2a+3)rx\} - p\, Cos\{(a+1)2rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{x\, Sin^{2a+1} rx\, dx}{q^2 + x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+2}} e^{-qr} \frac{(1 - e^{-2qr})^{2a+1}}{e^{qr} - p}$ (V, 60*).

13) $\int \frac{Cos\{(a+2)rx\} - p\, Cos\{(a+1)rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{Cos^a rx\, dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} qr} e^{-qr} \frac{(1 + e^{-2qr})^a}{e^{qr} - p}$ (V, 58*).

14) $\int \frac{Sin\, 2arx - p\, Sin\{(2a-1)rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{x\, Sin^{2a} x\, dx}{q^2 + x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{(1-2a)qr} \frac{(e^q - e^{-q})^{2a}}{e^{qr} - p} [r > 1], =$

$= \frac{(-1)^a \pi}{2^{2a+1}} \left\{ \frac{(1 - e^{-2q})^{2a}}{1 - pe^{-q}} - 1 \right\} [r = 1]$ (V, 59).

15) $\int \frac{Cos\{(2a+1)rx\} - p\, Cos\, 2arx}{1 - 2p\, Cos\, rx + p^2} \frac{x\, Sin^{2a+1} x\, dx}{q^2 + x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+2}} e^{-2aqr} \frac{(e^q - e^{-q})^{2a+1}}{e^{qr} - p} [r > 1], =$

$= \frac{(-1)^{a-1} \pi}{2^{2a+2}} \left\{ \frac{(1 - e^{-2q})^{2a+1}}{1 - pe^{-q}} - 1 \right\} [r = 1]$ (V, 59).

16) $\int \frac{Cos\, arx - p\, Cos\{(a-1)rx\}}{1 - 2p\, Cos\, rx + p^2} \frac{Cos^a x\, dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} e^{(1-a)qr} \frac{(e^q + e^{-q})^a}{e^{qr} - p} [r > 1], =$

$= \frac{\pi}{2^{a+1} q} \frac{(1 + e^{-2q})^a}{1 - pe^{-q}} [r = 1]$ (V, 58).

17) $\int \frac{Sin\, rx - p^{s-1} Sin\, srx + p^s Sin\{(s-1)rx\}}{(1 - 2p\, Cos\, rx + p^2)(1 - 2t\, Cos\, rx + t^2)} \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{2p(1 - te^{-qr})(1 - te^{qr})}$

$\left\{ \frac{1 - p^s e^{-sqr}}{1 - pe^{-qr}} - \frac{1 - p^s t^s}{1 - pt} \right\}$ (H, 179).

18) $\int \frac{1 - p\, Cos\, rx - p^s\, Cos\, srx + p^{s+1} Cos\{(s-1)rx\}}{(1 - 2p\, Cos\, rx + p^2)(1 - 2t\, Cos\, rx + t^2)} \frac{dx}{q^2 + x^2} = \frac{\pi}{2q(1 - te^{-qr})(1 - te^{qr})}$

$\left\{ \frac{1 - p^s e^{-sqr}}{1 - pe^{-qr}} - \frac{1 - p^s t^s}{1 - pt} \frac{p}{1 - p^2} (e^{qr} - e^{-qr}) \right\}$ (H, 179).

1) $\int \frac{Sin\, t r x \,.\, Sin\, s r x}{1-2p\, Cos\, r x + p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-p^2)} \frac{(1-p^2)\, Cos\, t q r \,.\, Sin\, s q r + p^{t+1}(p^s - p^{-s})\, Sin\, q r}{1-2p\, Cos\, q r + p^2}$

$[t>s]$ (H, 134).

2) $\int \frac{Sin\, r x \,.\, Sin\, s x}{1-2p\, Cos\, r x + p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{-Sin\, q r . Cos\, q s + p^d Sin\{(dr+r-s)q\} + p^{d+1} Sin\{(s-dr)q\}}{1-2p\, Cos\, q r + p^2}$

$\left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 505).

3) $\int \frac{Sin\, r x \,.\, Sin\, s x}{1-2p\, Cos\, 2 r x + p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q(1+p)} \frac{-(1+p)\, Sin\, q r . Cos\, q s + p^d Sin\{(2dr+r-s)q\} + p^{d+1} Sin\{(s-2dr+r)q\}}{1-2p\, Cos\, 2 q r + p^2}$ $\left[d = \mathcal{E}\frac{s}{2r}\right]$ (VIII, 538).

4) $\int \frac{Sin\, t r x \,.\, Cos\, s r x}{1-2p\, Cos\, r x + p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{4} \frac{p^t(p^s+p^{-s}) - 2\, Cos\, t q r \,.\, Cos\, s q r}{1-2p\, Cos\, q r + p^2} [t>s], =$

$= \frac{\pi}{4} \frac{2\, Sin\, t q r \,.\, Sin\, s q r + p^s(p^t - p^{-t})}{1-2p\, Cos\, q r + p^2} [t<s]$ (H, 135).

5) $\int \frac{Sin\, r x \,.\, Cos\, s x}{1-2p\, Cos\, r x + p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \frac{Sin\, q s \,.\, Sin\, q r + p^d\, Cos\{(dr+r-s)q\} - p^{d+1}\, Cos\{(dr-s)q\}}{1-2p\, Cos\, q r + p^2}$

$\left[\frac{s}{r}\text{ fract.}\right], = \frac{\pi}{4} \frac{2\, Sin\, q s \,.\, Sin\, q r - p^{d-1}(1-p^2)}{1-2p\, Cos\, q r + p^2} \left[\frac{s}{r}\text{ entier}\right]; \left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 505).

6) $\int \frac{Sin\, s x \,.\, Cos\, r x}{1-2p\, Cos\, r x + p^2} \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2(1-p^2)} \frac{(1-p^2)\, Cos\, q s \,.\, Cos\, q r - (1+p^2)p^d\, Cos\{(dr+r-s)q\} + (1+p^2)p^{d+1}\, Cos\{(s-dr)q\}}{1-2p\, Cos\, q r + p^2} \left[\frac{s}{r}\text{ fract.}\right], = \frac{\pi}{4} p^{d-1} +$

$+ \frac{\pi}{4p} \frac{p^{d-1} - Cos\, q s \,.\, Cos\, q r}{1-2p\, Cos\, q r + p^2} \left[\frac{s}{r}\text{ entier}\right]; \left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 504).

7) $\int \frac{Sin\, r x \,.\, Cos\, s x}{1-2p\, Cos\, 2 r x + p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2(1+p)} \frac{(1+p)\, Sin\, q r \,.\, Sin\, q s + p^d\, Cos\{(2ds+r-s)q\} - p^{d+1}\, Cos\{(2dr-r-s)q\}}{1-2p\, Cos\, 2 q r + p^2} \left[\frac{s}{2r}\text{ fract.}\right], = \frac{\pi}{8(1+p)} \frac{4(1+p)\, Sin\, q r \,.\, Sin\, q s - \{1+(-1)^d\}}{1-}$

$\frac{p^{\frac{1}{2}d}(1-p)\, Cos\, q r - \{1+(-1)^{d+1}\}(1-p^2)p^{\frac{1}{2}(d-1)}}{-2p\, Cos\, 2 q r + p^2} \left[\frac{s}{2r}\text{ entier}\right]; \left[d = \mathcal{E}\frac{s}{2r}\right]$ (VIII, 538).

8) $\int \frac{Sin\, s x \,.\, Cos\, r x}{1-2p\, Cos\, 2 r x + p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2(1-p)} \frac{(1-p)\, Cos\, q r \,.\, Cos\, q s + p^d\, Cos\{(2dr+r-s)q\} -}{1-}$

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$$\frac{-p^{d+1}\,Cos\,\{(s-2\,dr+r)\,q\}}{-2\,p\,Cos\,2\,qr+p^2}\left[\frac{s}{2\,r}\text{ fract.}\right], =\frac{\pi}{8\,(1-p)}\,\frac{4\,(1-p)\,Cos\,qr.Cos\,qs-\{1+(-1)^d\}}{1-}$$

$$\frac{p^{\frac{1}{2}d}(1-p)\,Cos\,qr-\{1+(-1)^{d+1}\}(1-p\,Cos\,2\,qr)\,p^{\frac{1}{2}(d-1)}}{-2\,p\,Cos\,2\,qr+p^2}\left[\frac{s}{2\,r}\text{ entier}\right];\;\left[d=\mathcal{E}\,\frac{s}{2\,r}\right]\text{ (VIII, 538).}$$

$$9)\int\frac{Cos\,t\,r\,x\,.\,Cos\,s\,r\,x}{1-2\,p\,Cos\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2\,q\,(1-p^2)}\,\frac{(1-p^2)\,Sin\,t\,q\,r\,.\,Cos\,s\,q\,r+p^{t+1}\,(p^s+p^{-s})\,Sin\,q\,r}{1-2\,p\,Cos\,q\,r+p^2}$$

$$[t>s]\text{ (H, 134).}$$

$$10)\int\frac{Cos\,r\,x\,.\,Cos\,s\,x}{1-2\,p\,Cos\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2\,q\,(1-p^2)}\,\frac{(1-p^2)\,Cos\,qr.\,Sin\,qs+(1+p^2)\,p^d\,Sin\,\{(dr+r-s)\,q\}+}{1-}$$

$$\frac{+(1+p^2)\,p^{d+1}\,Sin\,\{(s-dr)\,q\}}{-2\,p\,Cos\,qr+p^2}\left[d=\mathcal{E}\,\frac{s}{r}\right]\text{ (VIII, 504).}$$

$$11)\int\frac{Cos\,r\,x\,.\,Cos\,s\,x}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2\,q\,(1-p)}\,\frac{(1-p)\,Cos\,q\,r\,.\,Sin\,q\,s+p^d\,Sin\,\{(2\,d\,r+r-s)\,q\}+}{1-}$$

$$\frac{+p^{d+1}\,Sin\,\{(s-2\,dr+r)\,q\}}{-2\,p\,Cos\,2\,q\,r+p^2}\left[d=\mathcal{E}\,\frac{s}{2\,r}\right]\text{ (VIII, 538).}$$

$$12)\int\frac{Sin^s\,r\,x\,.\,Sin\,(\frac{1}{2}\,s\,\pi-s\,r\,x)}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^{s+1}}\,\frac{2^s\,Sin^s\,q\,r\,.\,Cos\,(\frac{1}{2}\,s\,\pi-s\,q\,r)-(1-p)^s}{1-2\,p\,Cos\,2\,q\,r+p^2}\text{ (H, 148).}$$

$$13)\int\frac{Sin^s\,r\,x\,.\,Cos\,(\frac{1}{2}\,s\,\pi-s\,r\,x)}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s+1}\,q}\,\frac{1}{1-2\,p\,Cos\,2\,q\,r+p^2}\left\{\frac{2p}{1+p}\,Sin\,2\,qr.(1-p)^{s-1}-\right.$$

$$\left.-2^s\,Sin^s\,q\,r\,.\,Sin\left(\frac{1}{2}\,s\,\pi-s\,q\,r\right)\right\}\text{ (H, 148).}$$

$$14)\int\frac{Sin^{s-1}\,r\,x\,.\,Sin\,\{(s-1)\,\frac{1}{2}\,\pi-(s+1)\,r\,x\}}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,\frac{2^{1-s}\,p\,(1-p)^{s-1}-Sin^{s-1}\,qr.}{1-}$$

$$\frac{Cos\,\{(s-1)\,\frac{1}{2}\,\pi-(s+1)\,q\,r\}}{-2\,p\,Cos\,2\,q\,r+p^2}\text{ (H, 171).}$$

$$15)\int\frac{Sin^{s-1}\,r\,x\,.\,Cos\,\{(s-1)\,\frac{1}{2}\,\pi-(s+1)\,r\,x\}}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,\frac{1}{1-2\,p\,Cos\,2\,q\,r+p^2}\left\{2^{2-s}\,\frac{p}{1+p}\right.$$

$$\left.(1-p)^{s-2}\,Sin\,2\,q\,r+Sin^{s-1}\,q\,r\,.\,Sin\,\{(s-1)\,\frac{1}{2}\,\pi-(s+1)\,q\,r\}\right\}\text{ (H, 171).}$$

$$16)\int\frac{Cos^s\,r\,x\,.\,Sin\,s\,r\,x}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2^{s+1}}\,\frac{(1+p)^s-2^s\,Cos^s\,q\,r\,.\,Cos\,s\,q\,r}{1-2\,p\,Cos\,2\,q\,r+p^2}\text{ (H, 146).}$$

$$17)\int\frac{Cos^s\,r\,x\,.\,Cos\,s\,r\,x}{1-2\,p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2}=\frac{\pi}{2^{s+1}\,q}\,\frac{1}{1-2\,p\,Cos\,2\,q\,r+p^2}\left\{\frac{2\,p}{1-p}\,Sin\,2\,qr.(1+p)^{s-1}+\right.$$

$$\left.+2^s\,Cos^s\,q\,r\,.\,Sin\,s\,q\,r\right\}\text{ (H, 146).}$$

18) $\int \frac{Cos^{s-1} rx . Sin \{(s+1)rx\}}{1-2p\, Cos 2rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2^s} \frac{(1+p)^{s-1}p - 2^s\, Cos^{s-1} qr . Cos\{(s+1)qr\}}{1-2p\, Cos 2qr+p^2}$ (H, 166).

19) $\int \frac{Cos^{s-1} rx . Cos \{(s+1)rx\}}{1-2p\, Cos 2rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2^{s-2}q} \frac{1}{1-2p\, Cos 2qr+p^2} \left\{\frac{p^2}{1-p}(1+p)^{s-2} Sin 2qr + \right.$
$\left. + 2^{s-3}\, Cos^{s-1} qr . Sin\{(s+1)qr\}\right\}$ (H, 166).

20) $\int \frac{Sin^s rx . Cos^t rx . Sin\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\, Cos 2rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \frac{Sin^s qr . Cos^t qr . Cos\{\frac{1}{2}s\pi-(s+t)qr\} - 2^{-s-t}(1+p)^t(1-p)^s}{1-2p\, Cos 2qr+p^2}$ (H, 150).

21) $\int \frac{Sin^s rx . Cos^t rx . Cos\{\frac{1}{2}s\pi-(s+t)rx\}}{1-2p\, Cos 2rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{2^{1-s-t}p(1+p)^{t-1}(1-s)^{s-1} Sin 2qr - Sin^s qr . Cos^t qr . Sin\{\frac{1}{2}s\pi-(s+t)qr\}}{1-2p\, Cos 2qr+p^2}$ (H, 150).

22) $\int \frac{Sin^{s-1} rx . Cos^{t-1} rx . Sin\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\, Cos 2rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \frac{2^{2-s-t}p(1+p)^{t-1}(1-p)^{s-1} - Sin^{s-1} qr . Cos^{t-1} qr . Cos\{(s-1)\frac{1}{2}\pi-(s+t)qr\}}{1-2p\, Cos 2qr+p^2}$ (H, 171).

23) $\int \frac{Sin^{s-1} rx . Cos^{t-1} rx . Cos\{(s-1)\frac{1}{2}\pi-(s+t)rx\}}{1-2p\, Cos 2rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{2^{3-s-t}(1+p)^{t-2}(1-p)^{s-2}\, p\, Sin 2qr + Sin^{s-1} qr . Cos^{t-1} qr . Sin\{(s-1)\frac{1}{2}\pi-(s+t)qr\}}{1-2p\, Cos 2qr+p^2}$ (H, 170).

F. Alg. rat. fract. à dén. bin. q^2-x^2; $[p^2<1]$. Circ. Dir. en dén. trin. et fonct. polyn. au num.; TABLE 198. Lim. 0 et ∞.

1) $\int \frac{1-p\, Cos rx - p^a\, Cos arx + p^{a+1}\, Cos\{(a-1)rx\}}{1-2p\, Cos rx+p^2} \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \frac{p\, Sin qr - p^a\, Sin aqr + p^{a+1}\, Sin\{(a-1)qr\}}{1-2p\, Cos qr+p^2}$ (VIII, 502).

2) $\int \frac{Sin rx - p^{a-1}\, Sin arx + p^a\, Sin\{(a-1)rx\}}{1-2p\, Cos rx+p^2} \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \frac{p - Cos qr + p^{a-1}\, Cos aqr - p^a\, Cos\{(a-1)qr\}}{1-2p\, Cos qr+p^2}$ (VIII, 503).

3) $$\int \frac{Sin\,rx - p^{a-1}\,Sin\,arx + p^a\,Sin\,\{(a-1)rx\}}{1 - 2p\,Cos\,rx + p^2}\,\frac{Sin\,sx\,dx}{q^2 - x^2} = -\frac{\pi}{2q}\,Cos\,qs\,\frac{Sin\,qr - p^{a-1}\,Sin\,aqr + p^a\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s \geqq (a-1)r],$$
$$= \frac{\pi}{2q}\,\frac{-Sin\,qr\,.\,Cos\,qs - p^d\,Sin\,\{(s - dr - r)q\} + p^{d+1}\,Sin\,\{(s-dr)q\} + p^{a-1}\,Sin\,qs\,.\,Cos\,aqr - p^a\,Sin\,qs\,.\,Cos\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s < (a-1)r];$$
$$\left[d = \mathcal{E}\,\frac{s}{r}\right] \text{ (VIII, 503).}$$

4) $$\int \frac{1 - p\,Cos\,rx - p^a\,Cos\,arx + p^{a+1}\,Cos\,\{(a-1)rx\}}{1 - 2p\,Cos\,rx + p^2}\,\frac{x\,Sin\,sx\,dx}{q^2 - x^2} = -\frac{\pi}{2}\,Cos\,qs\,\frac{1 - p\,Cos\,qr - p^a\,Cos\,aqr + p^{a+1}\,Cos\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s > (a-1)r],$$
$$= \frac{\pi}{4}\,p^{a-1} - \frac{\pi}{2}\,Cos\,\{(a-1)qr\}\,\frac{1 - p\,Cos\,qr - p^a\,Cos\,aqr + p^{a+1}\,Cos\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s = (a-1)r],$$
$$= \frac{\pi}{2}\,\frac{Cos\,qs.(p\,Cos\,qr - 1) + p^{d+1}\,Cos\,\{(s - dr - r)q\} - p^{d+2}\,Cos\,\{(s - dr)q\} - p^a\,Sin\,qs\,.\,Sin\,aqr + p^{a+1}\,Sin\,qs\,.\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}$$
$$\left[s < (a-1)r,\ \frac{s}{r}\text{ fract.}\right], = \frac{\pi}{4}\,p^d + \frac{\pi}{2}\,\frac{Cos\,qs\,.\,(p\,Cos\,qr - 1) + p^{d+1}\,Cos\,qr - p^{d+2} - p^a\,Sin\,qs\,.\,Sin\,aqr + p^{a+1}\,Sin\,qs\,.\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}$$
$$\left[s < (a+1)r,\ \frac{s}{r}\text{ entier}\right];\ \left[d = \mathcal{E}\,\frac{s}{r}\right] \text{ (VIII, 503).}$$

5) $$\int \frac{1 - p\,Cos\,rx - p^a\,Cos\,arx + p^{a+1}\,Cos\,\{(a-1)rx\}}{1 - 2p\,Cos\,rx + p^2}\,\frac{Cos\,sx\,dx}{q^2 - x^2} = \frac{\pi}{2q}\,Sin\,qs\,\frac{1 - p\,Cos\,qr - p^a\,Cos\,aqr + p^{a+1}\,Cos\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s \geqq (a-1)r],$$
$$= \frac{\pi}{2q}\,\frac{Sin\,qs.(1 - p\,Cos\,qr) - p^{d+1}\,Sin\,\{(s - dr - r)q\} + p^{d+2}\,Sin\,\{(s - dr)q\} - p^a\,Cos\,qs\,.\,Sin\,aqr + p^{a+1}\,Cos\,qs\,.\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s < (a-1)r];$$
$$\left[d = \mathcal{E}\,\frac{s}{r}\right] \text{ (VIII, 502, 503).}$$

6) $$\int \frac{Sin\,rx - p^{a-1}\,Sin\,arx + p^a\,Sin\,\{(a-1)rx\}}{1 - 2p\,Cos\,rx + p^2}\,\frac{x\,Cos\,sx\,dx}{q^2 - x^2} = \frac{\pi}{2}\,Sin\,qs\,\frac{Sin\,qr - p^{a-1}\,Sin\,aqr + p^a\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s > (a-1)r],$$
$$= -\frac{\pi}{4}\,p^{a-2} + \frac{\pi}{2}\,Sin\,qs\,\frac{Sin\,qr - p^{a-1}\,Sin\,aqr + p^a\,Sin\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;[s = (a-1)r],$$
$$= \frac{\pi}{2}\,\frac{Sin\,qs\,.\,Sin\,qr - p^d\,Cos\,\{(s - dr - r)q\} + p^{d+1}\,Cos\,\{(s - dr)q\} - p^{a-1}\,Cos\,aqr + p^a\,Cos\,\{(a-1)qr\}}{1 - 2p\,Cos\,qr + p^2}\;\left[s < (a-1)r,\ \frac{s}{r}\text{ fract.}\right], =$$

$$= -\frac{\pi}{4} p^{d-1} + \frac{\pi}{2} \frac{Sin\, qs \,.\, Sin\, qr - p^d\, Cos\, qr + p^{d+1} - p^{a-1}\, Cos\, a\, qr + p^a\, Cos\left\{(a-1)\, qr\right\}}{1 - 2p\, Cos\, qr + p^2}$$

$\left[s < (a-1)\, r, \frac{s}{r} \text{ entier}\right]; \left[d = \mathcal{E}\frac{s}{r}\right]$ (VIII, 503, 504).

7) $$\int \frac{1 - p\, Cos\, rx - p^s\, Cos\, srx + p^{s+1}\, Cos\left\{(s-1)\, rx\right\}}{(1 - 2p\, Cos\, rx + p^2)\,(1 - 2u\, Cos\, rx + u^2)} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q\,(1 - 2u\, Cos\, qr + u^2)}$$
$$\left\{\frac{2u}{1-u^2}\, Sin\, qr\, \frac{1 - p^s u^s}{1 - pu} + \frac{p\, Sin\, qr - p^s\, Sin\, sqr + p^{s+1}\, Sin\left\{(s-1)\, qr\right\}}{1 - 2p\, Cos\, qr + p^2}\right\}$$ (H, 179).

8) $$\int \frac{Sin\, rx - p^{s-1}\, Sin\, srx + p^s\, Sin\left\{(s-1)\, rx\right\}}{(1 - 2p\, Cos\, rx + p^2)\,(1 - 2u\, Cos\, rx + u^2)} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2p\,(1 - 2u\, Cos\, qr + u^2)}$$
$$\left\{\frac{1 - p^s u^s}{1 - pu} - \frac{1 - p\, Cos\, qr - p^s\, Cos\, sqr + p^{s+1}\, Cos\left\{(s-1)\, qr\right\}}{1 - 2p\, Cos\, qr + p^2}\right\}$$ (H, 179).

F. Alg. rat. fract. à dén. bin. $(q^2 - x^2)^2$; Circ. Dir. en dén.; $[p^2 < 1]$. TABLE 199. Lim. 0 et ∞.

1) $$\int \frac{Sin\, 2srx}{Sin\, rx} \frac{dx}{(q^2 - x^2)^2} = \frac{\pi}{4q^3}\left\{2\frac{Sin^2\, sqr}{Sin\, qr} - sqr\frac{Sin\, 2sqr}{Sin\, qr} + 2qr\frac{Cos\, qr}{Sin^2\, qr}\, Sin^2\, sqr\right\}$$ (H, 132).

2) $$\int \frac{Sin\, 2srx}{Sin\, rx} \frac{x^2\, dx}{(q^2 - x^2)^2} = \frac{\pi}{4q}\left\{-2\frac{Sin^2\, sqr}{Sin\, qr} - sqr\frac{Sin\, 2sqr}{Sin\, qr} + 2qr\frac{Cos\, qr}{Sin^2\, qr}\, Sin^2\, sqr\right\}$$ (H, 132).

3) $$\int \frac{Sin^2\, srx}{Sin\, rx} \frac{x\, dx}{(q^2 - x^2)^2} = \frac{\pi r}{4q}\left\{\frac{Cos\, qr}{Sin^2\, qr}\, Sin\, 2sqr - sqr\frac{Cos\, 2sqr}{Sin\, qr}\right\}$$ (H, 132).

4) $$\int \frac{Sin^2\, srx}{Sin\, rx} \frac{x^3\, dx}{(q^2 - x^2)^2} = \frac{\pi}{4}\left\{\frac{Sin\, 2sqr}{Sin\, 2qr} + 2sqr\frac{Cos\, 2sqr}{Sin\, qr} - qr\frac{Cos\, qr}{Sin^2\, qr}\, Sin\, 2sqr\right\}$$ (H, 132).

5) $$\int \frac{Sin\, rx}{1 - 2p\, Cos\, rx + p^2} \frac{x\, dx}{(q^2 - x^2)^2} = -\frac{1 - p^2}{4q} \frac{\pi p\, Sin\, qr}{(1 - 2p\, Cos\, qr + p^2)^2}$$ (H, 137).

6) $$\int \frac{Sin\, rx}{1 - 2p\, Cos\, rx + p^2} \frac{x^3\, dx}{(q^2 - x^2)^2} = \frac{\pi}{2} \frac{Cos\, qr - p}{1 - 2p\, Cos\, qr + p^2} - \frac{1 - p^2}{4} \frac{\pi pr\, Sin\, qr}{(1 - 2p\, Cos\, qr + p^2)^2}$$ (H, 137).

7) $$\int \frac{1 - p\, Cos\, rx}{1 - 2p\, Cos\, rx + p^2} \frac{dx}{(q^2 - x^2)^2} = \frac{p\pi}{4q^3} \frac{Sin\, qr}{1 - 2p\, Cos\, rx + p^2} - \frac{\pi pr}{4q^2} \frac{(1 + p^2)\, Cos\, qr - 2p}{(1 - 2p\, Cos\, qr + p^2)^2}$$ (H, 137).

8) $$\int \frac{1 - p\, Cos\, rx}{1 - 2p\, Cos\, rx + p^2} \frac{x^2\, dx}{(q^2 - x^2)^2} = \frac{-p\pi}{4q} \frac{Sin\, qr}{1 - 2p\, Cos\, qr + p^2} - \frac{1}{4}\pi pr \frac{(1 + p^2)\, Cos\, qr - 2p}{(1 - 2p\, Cos\, qr + p^2)^2}$$ (H, 137).

9) $$\int\frac{Sin\,s\,r\,x-p\,Sin\{(s-1)\,r\,x\}}{1-2\,p\,Cos\,r\,x+p^2}\frac{x\,dx}{(q^2-x^2)^2}=\frac{r\pi}{2\,p\,q}\frac{s\,Sin\,s\,q\,r-p\,[2\,s\,Sin\{(s-1)\,q\,r\}+(s-1)Sin\{(s+1)\,q\,r\}]+p^2[2(s-1)Sin\,s\,q\,r+s\,Sin\{(s-2)\,q\,r\}]-(s-1)\,p^3\,Sin\{(s-1)\,q\,r\}}{(1-2\,p\,Cos\,q\,r+p^2)^2}$$ (H, 138).

10) $$\int\frac{Sin\,s\,r\,x-p\,Sin\{(s-1)\,r\,x\}}{1-2\,p\,Cos\,r\,x+p^2}\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4\,p}\left\{2\,p\frac{Cos\,s\,q\,r-p\,Cos\{(s-1)\,q\,r\}}{1-2\,p\,Cos\,q\,r+p^2}-q\,r\frac{s\,Sin\,s\,q\,r-p\,[2\,s\,Sin\{(s-1)\,q\,r\}+(s-1)\,Sin\{(s+1)\,q\,r\}]+p^2[2(s-1)\,Sin\,s\,q\,r+s\,Sin\{(s-2)\,q\,r\}]-(s-1)\,p^3\,Sin\{(s-1)\,q\,r\}}{(1-2\,p\,Cos\,q\,r+p^2)^2}\right\}$$ (H, 138).

11) $$\int\frac{Cos\,s\,r\,x-p\,Cos\{(s-1)\,r\,x\}}{1-2\,p\,Cos\,r\,x+p^2}\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4\,q^3}\left\{\frac{Sin\,s\,q\,r-p\,Sin\{(s-1)\,q\,r\}}{1-2\,p\,Cos\,q\,r+p^2}-\frac{q\,r}{p}\frac{s\,Cos\,s\,q\,r-p\,[2\,s\,Cos\{(s-1)\,q\,r\}+(s-1)\,Cos\{(s+1)\,q\,r\}]+p^2[2(s-1)\,Cos\,s\,q\,r+s\,Cos\{(s-2)\,q\,r\}]-(s-1)\,p^3\,Cos\{(s-1)\,q\,r\}}{(1-2\,p\,Cos\,q\,r+p^2)^2}\right\}$$ (H, 137).

12) $$\int\frac{Cos\,s\,r\,x-p\,Cos\{(s-1)\,r\,x\}}{1-2\,p\,Cos\,r\,x+p^2}\frac{x^2\,dx}{(q^2-x^2)^2}=-\frac{\pi}{4\,q}\left\{\frac{Sin\,s\,q\,r-p\,Sin\{(s-1)\,q\,r\}}{1-2\,p\,Cos\,q\,r+p^2}+\frac{q\,r}{p}\frac{s\,Cos\,s\,q\,r-p\,[2\,s\,Cos\{(s-1)\,q\,r\}+(s-1)\,Cos\{(s+1)\,q\,r\}]+p^2[2\,(s-1)\,Cos\,s\,q\,r+s\,Cos\{(s-2)\,q\,r\}]-(s-1)\,p^3\,Cos\{(s-1)\,q\,r\}}{(1-2\,p\,Cos\,q\,r+p^2)^2}\right\}$$ (H, 137).

F. Alg. rat. fract. à dén. trinôme; Circ. Dir. en dén.; $[p^2<1]$. TABLE 200. Lim. 0 et ∞.

1) $$\int\frac{1}{1-2\,p\,Cos\,r\,x+p^2}\frac{dx}{x^4+2\,q^2\,x^2\,Cos\,2\,\lambda+q^4}=\frac{\pi\,Cosec\,2\,\lambda}{2\,q^3\,(1-p^2)}\frac{(e^{q\,r\,Cos\,\lambda}-p^2\,e^{-q\,r\,Cos\,\lambda})\,Sin\,\lambda+2\,p\,Sin(q\,r\,Sin\,\lambda).Cos\,\lambda}{e^{q\,r\,Cos\,\lambda}-2\,p\,Cos\,(q\,r\,Sin\,\lambda)+p^2\,e^{-q\,r\,Cos\,\lambda}}$$ (VIII, 478).

2) $$\int\frac{Sin\,r\,x}{1-2\,p\,Cos\,r\,x+p^2}\frac{x\,dx}{x^4+2\,q^2x^2\,Cos\,2\,\lambda+q^4}=\frac{\pi\,Cosec\,2\,\lambda}{2\,q^2}\frac{Sin\,(q\,r\,Sin\,\lambda)}{e^{q\,r\,Cos\,\lambda}-2\,p\,Cos\,(q\,r\,Sin\,\lambda)+p^2\,e^{-q\,r\,Cos\,\lambda}}$$ (VIII, 477).

3) $\int \frac{Cos\, r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x^4+2q^2x^2\, Cos\, 2\lambda+q^4} = \frac{\pi\, Cosec\, 2\lambda}{2q^3(1-p^2)} \frac{2\, Cos\, (q r\, Sin\, \lambda)\,.\, Sin\, \lambda + p\,(e^{qr\, Cos\, \lambda}-e^{-qr\, Cos\, \lambda}) + (1+p^2)\, Sin\, (qr\, Sin\, \lambda - \lambda)}{e^{qr\, Cos\, \lambda} - 2p\, Cos\, (qr\, Sin\, \lambda) + p^2 e^{-qr\, Cos\, \lambda}}$ (VIII, 478).

4) $\int \frac{Sin\, r x}{1-2p\, Cos\, 2rx+p^2} \frac{x\, dx}{x^4+2q^2x^2\, Cos\, 2\lambda+q^4} = \frac{\pi}{2q^2} \frac{1+pe^{-2qr\, Cos\, \lambda}}{(1+p)\, Sin\, 2\lambda} \frac{e^{qr\, Cos\, \lambda}\, Sin\, (qr\, Sin\, \lambda)}{e^{2qr\, Cos\, \lambda} - 2p\, Cos(2qr\, Sin\, \lambda) + p^2 e^{-2qr\, Cos\, \lambda}}$ V. T. 200, N. 2.

5) $\int \frac{x^2-p^2\, Sin^2\, x}{x^4-2p^2x^2\, Sin^2 x\, .\, Cos\, 2x+p^4\, Sin^4\, x} Sin^2\, x\, dx = \frac{\pi}{2p} \frac{e^p-e^{-p}}{e^p+e^{-p}}$

Hamilton, L. & E. Phil. Mag. 23, 360.

F. Alg. rat. fract. à dén. composé; Circ. Dir. en dén.; $[p^2<1]$. TABLE 201. Lim. 0 et ∞.

1) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^2+x^2)} = \frac{\pi}{2q^2}\left[s+\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}\right]$ (H, 175).

2) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^2-x^2)} = \frac{\pi}{4q^2}\left[2s-\frac{Sin\, 2sqr}{Sin\, qr}\right]$ (H, 175).

3) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(4q^4+x^4)} = \frac{\pi}{4q^4}\left[s-\frac{(1-e^{-2qr})e^{qr}\, Cos\, qr - e^{-(2s-1)qr}\, Cos\,\{(2s+1)qr\} + e^{-(2s+1)qr}\, Cos\,\{(2s-1)qr\}}{e^{2qr}-2\, Cos\, 2qr+e^{-2qr}}\right]$ (H, 175).

4) $\int \frac{Sin^2\, s r x}{Sin\, r x} \frac{dx}{x(q^4-x^4)} = \frac{\pi}{8q^4}\left[4s+2\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}-\frac{Sin\, 2sqr}{Sin\, qr}\right]$ (H, 175).

5) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(q^2+x^2)} = \frac{\pi}{2q^2}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^s-e^{-sqr}}{(1-pe^{qr})(1-pe^{-qr})}\right]$ (H, 178).

6) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(q^2-x^2)} = \frac{\pi}{2q^2}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^s-Cos\, sqr}{1-2p\, Cos\, qr+p^2}\right]$ (H, 178).

7) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(4q^4+x^4)} = \frac{\pi}{8q^4}\left[\frac{1-p^s}{(1-p)^2}+\frac{p^{s-1}-1}{1-p}\frac{e^{-qr}}{1-2pe^{-qr}\, Cos\, qr+p^2e^{-2qr}} - \frac{p^s e^{qr}(p\, Cos\, qr-e^{-qr})(1-e^{-2qr}) - pe^{-(s-1)}\, Cos\,\{(s+1)qr\}+(1+p^2)e^{-sqr}\, Cos\, sqr - pe^{-(s+1)qr}\, Cos\,\{(s-1)qr\}}{(1-2pe^{-qr}\, Cos\, qr+p^2e^{-2qr})(1-2pe^{qr}\, Cos\, qr+p^2e^{2qr})}\right]$ (H, 178).

8) $\int \frac{Sin\, s r x}{1-2p\, Cos\, r x+p^2} \frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left[2\frac{1-p^s}{(1-p)^2}+\frac{p^s-e^{-sqr}}{(1-pe^{qr})(1-pe^{-qr})}+\right.$

$\left.+\frac{p^s-Cos\, s q r}{1-2p\, Cos\, q r+p^2}\right]$ (H, 178).

9) $\int \frac{Sin\, 2 r x}{1-2p Cos\, 2 r x+p^2} \frac{dx}{x(q^2+x^2)} = \frac{1}{2}\frac{\pi}{1+p}\frac{e^{qr}-e^{-qr}}{e^{qr}+pe^{-qr}}$ V. T. 185, N. 3 et T. 192, N. 2.

10) $\int \frac{x^2-p^2\, Sin^2 x}{x^2-p\, x\, Sin\, 2x+p^2\, Sin^2 x} Sin\, x \frac{dx}{x} = \pi\left(e^{-\frac{1}{2}p}-\frac{1}{2}\right)$ Bronwin, L. & E. Phil. Mag. 24, 291.

F. Algébrique; Circ. Dir. TABLE 202. Lim. $-\infty$ et ∞.

1) $\int \frac{Sin\, p x}{x+q}\, dx = \pi\, Cos\, p q$ (IV, 315).

2) $\int \frac{Sin\, p x}{x-r\pm q i}\, dx = \pi\, e^{-p(q\pm r i)}$ (IV, 315).

3) $\int \frac{Sin\, p x}{x-q}\, dx = \pi\, Cos\, p q$ (IV, 315).

4) $\int \frac{Cos\, p x}{x+q}\, dx = \pi\, Sin\, p q$ (IV, 316).

5) $\int \frac{Cos\, p x}{x-r\pm q i}\, dx = \mp \pi i e^{-p(q\pm r i)}$ (IV, 316).

6) $\int \frac{Cos\, p x}{x-q}\, dx = -\pi\, Sin\, p q$ (IV, 316).

7) $\int \frac{Sin\, x}{(q\pm x i)^{1-p}}\, dx = \mp e^{-q}\, \Gamma(p)\, i\, Sin\, p\pi$ (IV, 315).

8) $\int \frac{Cos\, x}{(q\pm x i)^{1-p}}\, dx = e^{-q}\, \Gamma(p)\, Sin\, p\pi$ (IV, 316).

9) $\int \frac{Sin\,\{r(p-x)\}}{q^2+x^2}\, dx = \pi e^{-qr}\, Sin\, p r$ (IV, 315).

10) $\int \frac{x\, Sin\, p x}{q^2+x^2}\, dx = \pi e^{-pq}$ (IV, 315).

11) $\int \frac{Cos\,\{r(p-x)\}}{q^2+x^2}\, dx = \pi\, e^{-qr}\, Cos\, p r$ (IV, 317).

12) $\int \frac{p+qx}{r+2sx+x^2}\, Sin\, t x\, dx = \left(\frac{qs-p}{\sqrt{r-s^2}} Sin\, s t+q\, Cos\, s t\right)\pi e^{-t\sqrt{(r-s^2)}}$ (IV, 315).

13) $\int \frac{p+qx}{r+2sx+x^2}\, Cos\, t x\, dx = \left(\frac{p-qs}{\sqrt{r-s^2}} Cos\, s t+q\, Sin\, s t\right)\pi e^{-t\sqrt{(r-s^2)}}$ (IV, 317).

14) $\int \frac{Cos\,\{(q-1)\lambda\}-x\, Cos\, q\lambda}{1-2x\, Cos\,\lambda+x^2}\, Cos\, r x\, dx = \pi\, e^{-r\, Sin\,\lambda}\, Sin\,(q\lambda+r\, Cos\,\lambda)$ (IV, 317).

15) $\int Cos\left(qx-\frac{qr}{x}\right)\frac{dx}{1+\left(x-\frac{r}{x}\right)^2} = \pi\, e^{-q}$ Boole, C. & D. M. J. 4, 14.

16) $\int \frac{Cos\left\{p\left(x-\frac{q_1}{x-r_1}-\ldots-\frac{q_a}{x-r_a}\right)\right\}}{1+\left(x-\frac{q_1}{x-r_1}-\ldots-\frac{q_a}{x-r_a}\right)^2}\,dx=\pi e^{-p}$ Boole, Phil. Trans. 1857.

17) $\int \frac{(e^{qr}+e^{-qr})\,Cos\,qx-(e^{qr}-e^{-qr})\,i\,Sin\,qx}{p^2+x^2-r^2+2rxi}\,dx=\pi\frac{e^{-pr}-e^{pr}}{p}\,[r>p],=\frac{2\pi}{p}e^{-pr}\,[r<p]$ (IV, 318).

18) $\int \frac{(p+r^2+x^2)\,2x\,Sin\,2qx-r(p^2-r^2-x^2)(e^{2qr}-e^{-2qr})}{e^{2qr}+2\,Cos\,2qx+e^{-2qr}}\,\frac{dx}{\{x^2+(p-r)^2\}\{x^2+(p+r)^2\}}=$

$=\pi\,[r>p],=\frac{2\pi}{e^{2pq}+1}\,[r<p]$ (IV, 318).

TABLE 203.

1) $\int Sin\,px\,\frac{dx}{x}=\frac{\pi}{2}-Si(p)$ (VIII, 289*).

2) $\int Sin\{p(x-1)\}\frac{dx}{x}=Ci(p).Sin\,p+Cos\,p.\left\{\frac{1}{2}\pi-Si(p)\right\}$ (IV, 318).

3) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}.\left(x-\frac{1}{x}\right)dx\sqrt{x}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (IV, 318).

4) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{x-1}{x}\frac{dx}{\sqrt{x}}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (VIII, 446).

5) $\int Cos\,px\,\frac{dx}{x}=-Ci(p)$ (VIII, 289*).

6) $\int Cos\{p(x-1)\}\frac{dx}{x}=-Ci(p).Cos\,p+Sin\,p.\left\{\frac{1}{2}\pi-Si(p)\right\}$ (IV, 320).

7) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}.\left(x+\frac{1}{x}\right)dx\sqrt{x}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (IV, 320).

8) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{x+1}{x}\frac{dx}{\sqrt{x}}=e^{-2p}\sqrt{\frac{\pi}{2p}}$ (VIII, 446).

9) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{4+x+\frac{1}{x}}{\left(x+\frac{1}{x}\right)^2}\left(\sqrt{x}-\frac{1}{\sqrt{x}}\right)\frac{dx}{x}=e^{-2p}\sqrt{2p\pi}$ (IV, 319).

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10) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{4-x-\frac{1}{x}}{\left(x+\frac{1}{x}\right)^2}\left(\sqrt{x}+\frac{1}{\sqrt{x}}\right)\frac{dx}{x}=e^{-2p}\sqrt{2p\pi}$ (IV, 321).

11) $\int Sin\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{\{x+1-(x-1)i\}^{-a}-\{x+1+(x-1)i\}^{-a}}{2i}\left(x+\frac{1}{x}\right)x^{\frac{1}{2}a-1}dx=$

$=\frac{\pi p^{\frac{1}{2}a-1}e^{-2p}}{2^{\frac{1}{2}a+1}\Gamma\left(\frac{1}{2}a\right)}$ (VIII, 445).

12) $\int Cos\left\{p\left(x-\frac{1}{x}\right)\right\}\frac{\{x+1-(x-1)i\}^{-a}+\{x+1+(x-1)i\}^{-a}}{2}\left(x+\frac{1}{x}\right)x^{\frac{1}{2}a-1}dx=$

$=\frac{\pi p^{\frac{1}{2}a-1}e^{-2p}}{2^{\frac{1}{2}a+1}\Gamma\left(\frac{1}{2}a\right)}$ (VIII, 445).

13) $\int Sin\left\{p\left(x^2-\frac{1}{x^2}\right)\right\}.\left(x-\frac{1}{x}\right)\frac{dx}{x}=\frac{1}{2}e^{-2p}\sqrt{\frac{\pi}{2p}}$ V. T. 203, N. 4.

14) $\int Cos\left\{p\left(x^2-\frac{1}{x^2}\right)\right\}.\left(x+\frac{1}{x}\right)\frac{dx}{x}=\frac{1}{2}e^{-2p}\sqrt{\frac{\pi}{2p}}$ V. T. 203, N. 8.

15) $\int Sin\,px\frac{dx}{x^{2a}}=\frac{(-1)^a}{1^{2a-1/1}}p^{2a-1}\left(A+lp-\sum_1^{2a-1}\frac{1}{n}\right)-\frac{1}{2}\sum_1^{a-1}\frac{(-1)^n}{1^{2n-1/1}}\frac{p^{2n-1}}{a-n}-$

$-\sum_0^{\infty}\frac{(-1)^{a+n}}{1^{2a+2n+1/1}}\frac{p^{2a+2n}}{2n+1}$ (IV, 347*).

16) $\int Cos\,px\frac{dx}{x^{2a+1}}=\frac{(-1)^{a-1}}{1^{2a/1}}p^{2a}\left(A+lp-\sum_1^{2a}\frac{1}{n}\right)+\frac{1}{2}\sum_0^{a-1}\frac{(-1)^n}{1^{2n/1}}\frac{p^{2n}}{a-n}-\sum_1^{\infty}\frac{(-1)^{a+n}}{1^{2a+2n/1}}\frac{p^{2a+2n}}{2n}$

(IV, 347*).

F. Algébrique; Circ. Dir. TABLE 204. Lim. 0 et $\frac{\pi}{4}$.

1) $\int x\,Tang\,x\,dx=-\frac{\pi}{8}l2+\frac{1}{2}\sum_0^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 286, N. 1.

2) $\int x\,Cot\,x\,dx=\frac{\pi}{8}l2+\frac{1}{2}\sum_0^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 285, N. 1.

3) $\int x\,Tang^2x\,dx=\frac{1}{4}\pi-\frac{1}{32}\pi^2-\frac{1}{2}l2$ V. T. 204, N. 9.

4) $\int x^a \, Tang\, x\, dx = -\frac{1}{2}\left(\frac{\pi}{4}\right)^a l2 + \frac{1^{a/1}}{2^a} Cos \frac{1}{2} a\pi . \sum_1^\infty \frac{(-1)^{n-1}}{n^{a+1}} + \frac{1}{2^a} \sum_1^\infty (-1)^{n-1}$
$\left\{a^{2n-1/-1}\left(\frac{\pi}{2}\right)^{a-2n+1} \sum_0^\infty \frac{(-1)^m}{(2m+1)^{2n}} + a^{2n/-1}\left(\frac{\pi}{2}\right)^{a-2n} \sum_0^\infty \frac{(-1)^{m+1}}{(2m)^{2n+1}}\right\}$ (IV, 325*).

5) $\int x^a \, Cot\, x\, dx = \frac{1}{2}\left(\frac{\pi}{4}\right)^a l2 + \frac{1^{a/1}}{2^a} Cos \frac{1}{2} a\pi . \sum_1^\infty \frac{(-1)^{n-1}}{n^{a+1}} + \frac{1}{2^a} \sum_1^\infty (-1)^{n-1}$
$\left\{a^{2n-1/-1}\left(\frac{\pi}{2}\right)^{a-2n+1} \sum_0^\infty \frac{(-1)^m}{(2m+1)^{2n}} + a^{2n/-1}\left(\frac{\pi}{2}\right)^{a-2n} \sum_0^\infty \frac{(-1)^{m+1}}{(2m)^{2n+1}}\right\}$ (IV, 325*).

6) $\int x^p \, Cot\, x\, dx = \left(\frac{\pi}{4}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ (IV, 325*).

7) $\int x\, Tang^3 x\, dx = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8} l2 - \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 21.

8) $\int \left(\frac{\pi}{4} - x\, Tg\, x\right) Tg\, x\, dx = \frac{1}{2} l2 + \frac{1}{32}\pi^2 - \frac{\pi}{4} - \frac{\pi}{8} l2$ V. T. 232, N. 9.

9) $\int \frac{x}{Cos^2 x} dx = \frac{1}{4}\pi - \frac{1}{2} l2$ (VIII, 215).

10) $\int \frac{x^2}{Sin^2 x} dx = \frac{1}{4}\pi\, l2 - \frac{1}{16}\pi^2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

11) $\int x\, Sin\, x \frac{dx}{Cos^3 x} = \frac{\pi}{4} - \frac{1}{2}$ V. T. 229, N. 6.

12) $\int x^2 Sin^2 x \frac{dx}{Cos^4 x} = \frac{1}{3}\left\{-\frac{\pi}{4} l2 - \frac{\pi}{2} + \frac{1}{16}\pi^2 + 1 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}\right\}$ V. T. 229, N. 9.

13) $\int \frac{x^2}{Cos^2 x} Tg\, x\, dx = \frac{1}{2} l2 - \frac{1}{4}\pi + \frac{1}{16}\pi^2$ V. T. 204, N. 3.

14) $\int \frac{x^{p+1}}{Sin^2 x} dx = -\left(\frac{1}{4}\pi\right)^{p+1} + (p+1)\left(\frac{\pi}{4}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

15) $\int \frac{x\, Sin^{q-1} x}{Cos^{q+1} x} dx = \frac{\pi}{4q} + \frac{1}{q} \sum_0^\infty \frac{(-1)^{n-1}}{q+2n+1}$ V. T. 34, N. 1.

16) $\int \frac{x\, Sin^{2a} x}{Cos^{2a+2} x} dx = \frac{1}{2(2a+1)}\left\{\frac{\pi}{2} + (-1)^{a-1} l2 + \sum_0^{a-1} \frac{(-1)^{n-1}}{a-n}\right\}$ V. T. 34, N. 3.

17) $\int \frac{x\, Sin^{2a-1} x}{Cos^{2a+1} x} dx = \frac{\pi}{8a}(1 - Cos\, a\pi) + \frac{1}{2a} \sum_0^{a-1} \frac{(-1)^{n-1}}{2a-2n-1}$ V. T. 34, N. 2.

18) $\int \left(\frac{\pi}{4} - x\right) \frac{dx}{Cos\, 2x} = \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 4.

19) $\int\left(\frac{\pi}{4}-x\right)\frac{Tg\,x\,dx}{Cos\,2\,x}=-\frac{\pi}{8}\,l2+\frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2\,n+1)^2}$ V. T. 232, N. 5.

20) $\int\left(\frac{\pi}{4}-x\,Tang\,x\right)\frac{dx}{Cos\,2\,x}=\frac{\pi}{8}\,l2+\frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2\,n+1)^2}$ V. T. 232, N. 6.

21) $\int\left(\frac{\pi}{4}-x\,Tang^3\,x\right)\frac{dx}{Cos\,2\,x}=\frac{\pi}{4}-\frac{1}{2}+\frac{\pi}{8}\,l2+\frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2\,n+1)^2}$ V. T. 232, N. 7.

22) $\int\frac{(x-\frac{1}{2}\pi)\,Tg^2\,x+x}{Cos\,2\,x}\,\frac{dx}{Tg\,x}=\frac{1}{4}\pi\,l2$ V. T. 232, N. 1.

23) $\int\frac{Cos\,x-Sin\,x}{Sin\,x+Cos\,x}\,x\,dx=\frac{\pi}{4}\,l2-\frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2\,n+1)^2}$ V. T. 235, N. 21.

24) $\int\frac{x}{(Cos\,x+p\,Sin\,x)^2}\,dx=\frac{1}{1+p^2}\,l\frac{1+p}{\sqrt{2}}+\frac{\pi}{4}\,\frac{1-p}{(1+p)\,(1+p^2)}$ (IV, 323).

25) $\int\frac{x\,Cos\,2\,x}{(1+Sin\,x\,.\,Cos\,x)^2}\,dx=\pi\,\frac{2-\sqrt{3}}{6\sqrt{3}}$ (IV, 323).

26) $\int\frac{x\,Cos\,2\,x}{(1-Sin\,x\,.\,Cos\,x)^2}\,dx=\pi\,\frac{3\sqrt{3}-4}{6\sqrt{3}}$ (IV, 323).

27) $\int\frac{x\,Sin\,4\,x}{(1-Sin^2x\,.\,Cos^2\,x)^2}\,dx=\pi\,\frac{2-\sqrt{3}}{3}$ V. T. 202, N. 16, 17.

28) $\int\frac{x}{Sin\,x+Cos\,x}\,\frac{dx}{Cos\,x}=\frac{1}{8}\pi\,l2$ V. T. 287, N. 1.

29) $\int\frac{x}{Sin\,x+Cos\,x}\,\frac{dx}{Sin\,x}=-\frac{\pi}{8}\,l2+\sum_{0}^{\infty}\frac{(-1)^n}{(2\,n+1)^2}$ V. T. 235, N. 11.

30) $\int\frac{Sin\,x}{Sin\,x+Cos\,x}\,\frac{x\,dx}{Cos^2\,x}=-\frac{\pi}{8}\,l2+\frac{\pi}{4}-\frac{1}{2}\,l2$ V. T. 231, N. 18.

31) $\int\frac{1+2\,Cos\,\lambda\,.\,Sin\,2\,x\,.\,Sin^2\,x}{(1+Cos\,\lambda\,.\,Sin\,2\,x)^2}\,\frac{x}{Cos^2\,x}\,dx=\frac{\pi}{4\,(1+Cos\,\lambda)}+\frac{1}{2}\,\lambda\,Cot\,\lambda-l\left(2\,Cos\,\frac{1}{2}\,\lambda\right)$
V. T. 36, N. 1.

32) $\int\frac{x\,Tg^3\,x}{\sqrt{Cos\,2\,x}}\,dx=\sqrt{2}\,.\left\{F'\left(Sin\,\frac{\pi}{4}\right)-E'\left(Sin\,\frac{\pi}{4}\right)\right\}$ V. T. 38, N. 1.

33) $\int\frac{x}{Sin\,x.\,\sqrt{Cos\,2\,x}}\,dx=\frac{1}{2}\pi\,l(1+\sqrt{2})$ V. T. 244, N. 11.

34) $\int\frac{\sqrt{Tg\,x}-\sqrt{Cot\,x}}{Sin\,2\,x}\,x\,dx=\frac{1}{2}\pi\,(1-\sqrt{2})$ V. T. 38, N. 2.

1) $\int x\, Cot\, x\, dx = \frac{1}{2}\pi\, l2$ (VIII, 612).

2) $\int x\, Tg\, x\, dx = \infty$ V. T. 306, N. 1.

3) $\int x Cos^p x . Tg\, x\, dx = \frac{\pi}{p . 2^{p+1}} \frac{\Gamma(p+1)}{\{\Gamma(\frac{1}{2}p+1)\}^2}$ V. T. 41, N. 3.

4) $\int x\, Cos^{q-1} x . Sin\{(q+1)x\}\, dx = \frac{\pi}{q . 2^{q+1}}$ (VIII, 430).

5) $\int x\, Cos^q x . Sin\{(q+2a)x\}\, dx = -\frac{\pi\, Cos\, a\pi}{2^{q+2}} \frac{1^{a-1/1}}{q^{a-1/1}}$ (VIII, 430).

6) $\int x\, Cos^{p-1} x . Sin\, q\, x\, dx = \frac{\pi}{2^{p+1}} \Gamma(p) \frac{Z'\left(\frac{p+q+1}{2}\right) - Z'\left(\frac{p-q+1}{2}\right)}{\Gamma\left(\frac{p+q+1}{2}\right) . \Gamma\left(\frac{p-q+1}{2}\right)}$ (IV, 324).

7) $\int x^p\, Cot\, x\, dx = \left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ (IV, 325).

8) $\int x^a\, Cot\, x\, dx = \left(\frac{\pi}{2}\right)^a l2 + Cos\frac{1}{2}a\pi . 1^{a/1} \sum_1^\infty \left\{\frac{1}{n^{a+1}} + \frac{(-1)^n}{n^{a+1}}\right\} + 2\sum_1^\infty (-1)^n (a-1)^{2n-1/-1}$
$\left(\frac{\pi}{2}\right)^{a-2n} \sum_1^\infty \frac{(-1)^{n-1}}{(2m)^{2n+1}}$ (IV, 326).

9) $\int x\, Sin(p\, Tg\, x)\, dx = \frac{1}{4}\pi e^{-p}\{A + l2p - e^p\, Ei(-2p)\}$ V. T. 446, N. 2.

10) $\int x\, Cos(p\, Tg\, x) . Tg\, x\, dx = -\frac{1}{4}\pi e^{-p}\{A + l2p + e^p\, Ei(-2p)\}$ V. T. 446, N. 4.

F. Alg. rat. ent.; Circ. Dir. en dén. monôme. TABLE 206. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x}{Sin\, x}\, dx = 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ (IV, 325).

2) $\int \frac{x^a}{Sin\, x}\, dx = Cos\frac{1}{2}a\pi . 1^{a/1} \sum_1^\infty \left\{\frac{1}{n^{a+1}} + \frac{(-1)^{n-1}}{n^{a+1}}\right\} + 2\sum_1^\infty (-1)^{n-1} a^{2n-1/-1} \left(\frac{\pi}{2}\right)^{a-2n-1}$
$\sum_1^\infty \frac{(-1)^{m-1}}{(2m-1)^{2n}}$ (IV, 325).

3) $\int \frac{x^p}{Sin\, x}\, dx = \left(\frac{\pi}{2}\right)^p \left\{1 + \sum_1^\infty \frac{1}{2^{2m-2}} \frac{2^{2m-1}-1}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$ (IV, 325).

4) $\int \frac{x\, Cos\, x}{Sin\, x}\, dx = \frac{1}{2}\pi\, l2$ (VIII, 612). 5) $\int \frac{x^2}{Sin^2 x}\, dx = \pi\, l2$ (VIII, 589).

6) $\int \frac{x^{p+1}}{Sin^2 x}\, dx = (p+1)\left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$ V. T. 205, N. 7.

7) $\int \frac{x^2\, Cos\, x}{Sin^2 x}\, dx = -\frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

8) $\int \frac{x^3\, Cos\, x}{Sin^3 x}\, dx = -\frac{1}{16}\pi^3 + \frac{3}{2}\pi\, l2$ V. T. 206, N. 5.

9) $\int \frac{1 - x\, Cot\, x}{Sin^2 x}\, dx = \frac{1}{4}\pi$ (IV, 326). 10) $\int \frac{4x^2\, Cos\, x + (2\pi - x)x}{Sin\, x}\, dx = \pi^2\, l2$ (IV, 326).

11) $\int \frac{x\, Sin^p x}{Tg\, x}\, dx = \frac{\pi}{2p} - \frac{2^{p-1}}{p} \frac{\left\{\Gamma\left(\frac{p+1}{2}\right)\right\}^2}{\Gamma(p+1)}$ V. T. 40, N. 3.

12) $\int \frac{x}{Tg\, x\, .\, Cos\, 2x}\, dx = \frac{1}{4}\pi\, l2$ V. T. 250, N. 6.

13) $\int \frac{x}{Tg^p x\, .\, Sin\, 2x}\, dx = \frac{\pi}{4p}\, Sec\, \frac{1}{2}p\pi\ [p<1]$ V. T. 45, N. 19.

14) $\int Sin\,(q\, Cot\, x)\, \frac{x}{Sin^2 x}\, dx = \frac{e^{-q} - 1}{2q}\pi$ V. T. 347, N. 1.

15) $\int Cos\,(q\, Tg\, x)\, \frac{x}{Sin\, 2x}\, dx = -\frac{\pi}{4}\, Ei(-q)$ V. T. 445, N. 1.

F. Alg. rat. ent.; Circ. Dir. en dén. binôme. **TABLE 207.** Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x\, Sin\, x}{Cos^2 \lambda - Sin^2 x}\, dx = -2\, Cosec\, \lambda\, .\, \sum_0^\infty \frac{Sin\,\{(2n+1)\lambda\}}{(2n+1)^2}$ (IV, 327).

2) $\int \frac{x\, Sin\, 2x}{1 + q\, Sin^2 x}\, dx = \frac{\pi}{q}\, l\, \frac{2\sqrt{1+q}}{1+\sqrt{1+q}}$ (VIII, 589).

3) $\int \frac{x^{2n}}{1 - Cos\, x}\, dx = \pi\, l2 - \frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

4) $\int \frac{x^{p+1}}{1 - Cos\, x}\, dx = -\left(\frac{\pi}{2}\right)^{p+1} + (p+1)\left(\frac{\pi}{2}\right)^p \left\{2 - \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

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5) $\int \frac{x^a \, Sin\, x}{Cos\, x + Cos\, \lambda} dx = -\left(\frac{\pi}{2}\right)^a l(2\, Cos\, \lambda) + 2 \,.\, 1^{a/1} \,.\, Cos\, \frac{1}{2} a\pi \,.\, \overset{\infty}{\underset{1}{\Sigma}} (-1)^{n-1} \frac{Cos\, n\lambda}{n^{a+1}} + 2 \overset{\infty}{\underset{1}{\Sigma}} (-1)^{n-1}$
$\left\{ Cos\{(2n-1)\lambda\} \,.\, \overset{\infty}{\underset{1}{\Sigma}} (-1)^{m-1} \frac{a^{2m-1/-1}}{(2n-1)^{2m}} \left(\frac{\pi}{2}\right)^{a+1-2m} + Cos\, 2n\lambda \,.\, \overset{\infty}{\underset{1}{\Sigma}} (-1)^{m-1} \frac{a^{2m/-1}}{(2n)^{2m+1}} \left(\frac{\pi}{2}\right)^{a-2m} \right\}$
(IV, 327).

6) $\int \frac{x^a \, Sin\, x}{Cos\, x - Cos\, \lambda} dx = -\left(\frac{\pi}{2}\right)^a l(2\, Cos\, \lambda) - 2 \,.\, 1^{a/1} \,.\, Cos\, \frac{1}{2} a\pi \,.\, \overset{\infty}{\underset{1}{\Sigma}} \frac{Cos\, n\lambda}{n^{a+1}} - 2 \overset{\infty}{\underset{1}{\Sigma}} (-1)^{n-1}$
$\left\{ Cos\{(2n-1)\lambda\} \,.\, \overset{\infty}{\underset{1}{\Sigma}} (-1)^{m-1} \frac{a^{2m-1/-1}}{(2n-1)^{2m}} \left(\frac{\pi}{2}\right)^{a+1-2m} - Cos\, 2n\lambda \,.\, \overset{\infty}{\underset{1}{\Sigma}} (-1)^{m-1} \frac{a^{2m/-1}}{(2n)^{2m+1}} \left(\frac{\pi}{2}\right)^{a-2m} \right\}$
(IV, 327).

7) $\int \frac{x^a \, Sin\, x}{Cos\, x \pm q} dx = -2\, Cos\, \frac{1}{2} a\pi \,.\, 1^{a/1} \overset{\infty}{\underset{1}{\Sigma}} \frac{(\mp c)^n}{n^{a+1}} - 2 \overset{\infty}{\underset{1}{\Sigma}} \left\{ c^{2n} \overset{\infty}{\underset{0}{\Sigma}} \binom{a}{2m} (-1)^m \left(\frac{\pi}{2}\right)^{a-2m} \frac{1}{(2n)^{2m+1}} + \right.$
$\left. + c^{2n-1} \overset{\infty}{\underset{0}{\Sigma}} \binom{a}{2m+1} (-1)^m \left(\frac{\pi}{2}\right)^{a-2m-1} \frac{1}{(2n+1)^{2m+2}} \right\}$ [où $c = q - \sqrt{q^2 - 1}$] (IV, 327).

8) $\int \frac{Cos\, x - Sin\, x}{Sin\, x + Cos\, x} x\, dx = \frac{\pi}{4} l2 - \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 12.

9) $\int \frac{Sin\, x + Cos\, x}{Cos\, x - Sin\, x} x\, dx = -\frac{\pi}{4} l2 - \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 13.

10) $\int \frac{x\, Sin\, 2x}{1 + q\, Cos^2 x} dx = \frac{\pi}{q} l \frac{1 + \sqrt{1+q}}{2}$ (VIII, 589).

11) $\int \frac{x\, Tg\, x}{p^2\, Sin^2 x + q^2\, Cos^2 x} dx = \frac{\pi}{2p^2} l \frac{q}{q+p}$ V. T. 308, N. 17.

F. Alg. rat. ent.; Circ. Dir. en dén. d'autre forme. TABLE 208. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x\, Cos\, x}{(1 + Cos\, \lambda \,.\, Sin\, x)^2} dx = 2\lambda\, Cosec\, 2\lambda - \frac{1}{2\, Cos\, \lambda} \frac{\pi}{1 + Cos\, \lambda}$ (IV, 329).

2) $\int \frac{x\, Cos\, 2x}{(1 + Sin\, x \,.\, Cos\, x)^2} dx = \frac{2}{9}\pi\sqrt{3} - \frac{1}{2}\pi$ (IV, 329).

3) $\int \frac{x\, Cos\, 2x}{(1 - Sin\, x \,.\, Cos\, x)^2} dx = \frac{1}{2}\pi - \frac{4}{9}\pi\sqrt{3}$ (IV, 329).

4) $\int \frac{x\, Sin\, 2x}{(1 - Cos^2 \lambda \,.\, Sin^2 x)^2} dx = 2\pi\, Cosec^2\, 2\lambda \,.\, (1 - Sin\, \lambda)$ V. T. 208, N. 1.

5) $\int \frac{x}{(Sin\, x \pm q\, Cos\, x)^2}\, dx = \pm \frac{\pi}{2} \frac{q}{1+q^2} - \frac{1}{1+q^2}\, l q$ V. T. 47, N. 1, 2.

6) $\int \frac{x\, Sin\, x}{(p+q\, Cos\, x)^2}\, dx = \frac{\pi}{2pq} - \frac{1}{q\sqrt{p^2-q^2}}\, Arccos \frac{q}{p} [q<p], = \frac{\pi}{2pq} + \frac{1}{q\sqrt{q^2-p^2}}\, l \frac{p}{q+\sqrt{q^2-p^2}}$
$[q>p]$ (IV, 329).

7) $\int \frac{x\, Cos\, x}{(s+Sin\, x)^2}\, dx = \frac{1}{\sqrt{1-s^2}}\, l \frac{1+\sqrt{1-s^2}}{s} - \frac{\pi}{2(s+1)} [s^2<1], = \frac{1}{\sqrt{s^2-1}}\, Arccos \frac{1}{s} -$
$- \frac{\pi}{2(1+s)} [s^2>1]$ (VIII, 589).

8) $\int \frac{x\, Sin\, x}{(p+q\, Cos\, x)^3}\, dx = \frac{\pi}{4p^2 q} + \frac{1}{p^2-q^2} \left\{ \frac{1}{2p} - \frac{p}{2q\sqrt{p^2-q^2}}\, Arccos \frac{q}{p} \right\} [p^2>q^2], = \frac{\pi}{4p^2 q} -$
$- \frac{1}{q^2-p^2} \left\{ \frac{1}{2p} + \frac{p}{2q\sqrt{q^2-p^2}}\, l \frac{q+\sqrt{q^2-p^2}}{p} \right\} [p^2<q^2]$ (VIII, 587).

9) $\int \frac{x\, Sin\, 4x}{(1-Sin^2 x\, Cos^2 x)^2}\, dx = \left(1 - \frac{2}{\sqrt{3}}\right) \pi$ V. T. 208, N. 2, 3.

10) $\int \frac{x\, Sin\, 2x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^2}\, dx = \frac{\pi}{2p^2 q(p+q)}$ V. T. 47, N. 13.

11) $\int \frac{x\, Sin\, 2x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^3}\, dx = \frac{\pi}{8p^4 q^3} \frac{p^2+pq+2q^2}{p+q}$ V. T. 48, N. 13.

12) $\int \frac{x\, Sin\, 2x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^4}\, dx = \frac{\pi}{48 p^6 q^5} \frac{3p^4+3p^3 q+5p^2 q^2+5pq^3+8q^4}{p+q}$ V. T. 48, N. 17.

13) $\int \frac{x\, Sin\, 2x}{(p^2\, Sin^2 x + q^2\, Cos^2 x)^5}\, dx = \frac{\pi}{128 p^8 q^7} \frac{5p^6+5p^5 q+8p^4 q^2+8p^3 q^3+11p^2 q^4+11pq^5+16q^6}{p+q}$
V. T. 48, N. 21.

14) $\int \frac{Cos^2 \lambda + Sin^2 x}{(Cos^2 \lambda - Sin^2 x)^2}\, x^2\, Cos\, x\, dx = - \frac{\pi^2}{4\, Sin^2 \lambda} + \frac{4}{Sin\, \lambda} \sum_0^\infty \frac{Sin \{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

15) $\int \frac{x}{(Tg^p x + Cot^p x)^q}\, dx = \frac{\sqrt{\pi^3}}{2^{2q+2} p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422).

16) $\int \frac{x}{Sin\, x + Cos\, x} \frac{dx}{Sin\, x} = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 1.

17) $\int \frac{x}{Cos\, x - Sin\, x} \frac{dx}{Sin\, x} = \frac{\pi}{4}\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 250, N. 2.

18) $\int \frac{x}{p^4 - q^4\, Tg^4 x} \frac{dx}{Sin\, 2x} = \frac{\pi}{16 p^4}\, l \frac{(p+q)^2 (p^2+q^2)}{q^4}$ V. T. 248, N. 13.

19) $\int \frac{Sin\, x}{p^4 - q^4\, Tg^4\, x}\, \frac{x}{Cos^3\, x}\, dx = \frac{\pi}{8 p^2 q^2}\, l\, \frac{p^2 + q^2}{(p+q)^2}$ V. T. 248, N. 12.

20) $\int \frac{x}{p^2\, Sin^2\, x + q^2\, Cos^2\, x}\, \frac{dx}{Tg\, x} = \frac{\pi}{2 q^2}\, l\, \frac{p}{p+q}$ V. T. 308, N. 17.

21) $\int \frac{Sin\, x\, .\, Cos\, x}{1 - Sin^2\, \lambda\, .\, Cos^2\, x}\, \frac{x}{1 - Sin^2\, \mu\, .\, Cos^2 x}\, dx = \frac{\pi}{Cos^2\, \lambda - Cos^2\, \mu}\, l\left(Cos\, \frac{1}{2}\lambda\, .\, Sec\, \frac{1}{2}\mu\right)$ (IV, 330).

22) $\int \frac{x\, Sin\, 2\, x}{1 + p\, Sin^2\, x}\, \frac{dx}{1 + q\, Sin^2\, x} = \frac{\pi}{p - q}\, l\left\{\frac{1 + \sqrt{1+q}}{1 + \sqrt{1+p}}\, .\, \frac{\sqrt{1+p}}{\sqrt{1+q}}\right\}$ V. T. 207, N. 2.

23) $\int \frac{x\, Sin\, 2\, x}{1 + p\, Cos^2\, x}\, \frac{dx}{1 + q\, Cos^2\, x} = \frac{\pi}{p - q}\, l\, \frac{1 + \sqrt{1+p}}{1 + \sqrt{1+q}}$ V. T. 207, N. 10.

24) $\int \frac{x\, Sin\, 2\, x}{1 + p\, Sin^2\, x}\, \frac{dx}{1 + q\, Cos^2\, x} = \frac{\pi}{p + pq + q}\, l\, \frac{\{1 + \sqrt{1+q}\}\, \sqrt{1+p}}{1 + \sqrt{1+p}}$ V. T. 207, N. 2, 10.

25) $\int \frac{Tg^2\, x}{(p^2 + q^2\, Tg^2\, x)^2}\, \frac{x}{Sin\, 2\, x}\, dx = \frac{\pi}{8 p q^2 (p+q)}$ (IV, 330*).

26) $\int \frac{x}{(Tg\, x + Cot\, x)^3}\, \frac{dx}{Tg\, 2\, x\, .\, Sin\, 2\, x} = -\frac{\pi}{128}$ V. T. 48, N. 4.

27) $\int \frac{x}{(Tg^p\, x + Cos^p\, x)^q}\, \frac{dx}{Sin\, 2\, x} = \frac{\sqrt{\pi^3}}{2^{2q+3}\, p}\, \frac{\Gamma(q)}{\Gamma(q + \frac{1}{2})}$ (VIII, 422).

28) $\int \left[\frac{p^2\, x\, Sin\, 2\, p\, x}{Cos\, p\, \pi - Cos\, 2\, p\, x} - \frac{(1 - p^2)\, x - (1 - p)\, \frac{1}{2}\pi}{Cos\, p\, \pi - Cos\, \{(1-p)\, 2\, x\}}\, Sin\, \{2\, (1-p)\, x\}\right] dx = \frac{\pi}{4}\, l\, \{2\, (1 + Cos\, p\, \pi)\}$ (IV, 330).

29) $\int \frac{x\, Cos\, x}{1 + 2\, p\, Sin\, x + p^2}\, dx = \frac{\pi}{2p}\, l\, (1+p) - \frac{1}{2p}\, \sum_0^\infty \frac{1}{2n+1}\, \frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}$ $[p^2 \leqq 1]$ (IV, 328).

30) $\int \frac{x\, Sin\, x}{(1 \pm 2\, x\, Cos\, x + r^2)^2}\, dx = \pm\frac{1}{r}\left\{\frac{\pi}{4(1 + r^2)} - \frac{1}{1 - r^2}\, Arctg\, \frac{1 \mp r}{1 \pm r}\right\}$ (VIII, 587).

F. Alg. rat. ent.; $[p^2 < 1]$. TABLE 209. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. sous forme irrat. ent.;

1) $\int x\, Sin\, x\, .\, Cos\, x\, dx\, \sqrt{1 - p^2\, Sin^2\, x} = \frac{1}{9 p^2}\left[(4 - 2 p^2)\, E'(p) - (1 - p^2)\, F'(p) - \frac{3}{2}\pi\sqrt{1 - p^2}^3\right]$.

2) $\int x\, Sin\, x\, .\, Cos^3\, x\, dx\, \sqrt{1 - p^2\, Sin^2\, x} = \frac{1}{225\, p^4}\, [15\, \pi\, \sqrt{1 - p^2}^5 + (1 - 13 p^2)(1 - p^2)\, F'(p) -$

$- (31 - 81 p^2 + 26 p^4)\, E'(p)]$.

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3) $\int x\,Sin\,x.Cos^5 x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{11025p^6}[-420\pi\sqrt{1-p^2}^7 + (62-13p^2-409p^4)$
$(1-p^2)F'(p) + 2(389-1343p^2+1723p^4-409p^6)E'(p)]$.

4) $\int x\,Sin\,x.Cos^7 x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{99225p^8}[2520\pi\sqrt{1-p^2}^9 - (652-1815p^2+774p^4+$
$+2629p^6)(1-p^2)F'(p) - (4388-19279p^2+33012p^4-27859p^6+5258p^8)E'(p)]$.

5) $\int x\,Sin^3 x.Cos\,x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{225p^4}[-15(2+3p^2)\frac{\pi}{2}\sqrt{1-p^2}^3 - (1+12p^2)(1-p^2)$
$F'(p) + (31+19p^2-24p^4)E'(p)]$.

6) $\int x\,Sin^3 x.Cos^3 x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{11025p^6}[105(4+3p^2)\pi\sqrt{1-p^2}^5 - 2(31-31p^2+114p^4)$
$(1-p^2)F'(p) - (778-1167p^2-523p^4+456p^6)E'(p)]$.

7) $\int x\,Sin^3 x.Cos^5 x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{99225p^8}[-1260(2+p^2)\pi\sqrt{1-p^2}^7 + (652-1257p^2+$
$+657p^4-1052p^6)(1-p^2)F'(p) + (4388-12277p^2+8838p^4+3155p^6-2104p^8)E'(p)]$.

8) $\int x\,Sin^5 x.Cos\,x\,dx\,\sqrt{1-p^2\,Sin\,x} = \frac{1}{11025p^6}[-105(8+12p^2+15p^4)\frac{\pi}{2}\sqrt{1-p^2}^3 + (62-111p^2-$
$-360p^4)(1-p^2)F'(p) + 2(389+176p^2+204p^4-360p^6)E'(p)]$.

9) $\int x\,Sin^5 x.Cos^3 x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{99225p^8}[315(8+8p^2+5p^4)\pi\sqrt{1-p^2}^5 -$
$-(652-699p^2+99p^4+1000p^6)(1-p^2)F'(p) - (4388-5275p^2-1665p^4-$
$-1552p^6+2000p^8)E'(p)]$.

10) $\int x\,Sin^7 x.Cos\,x\,dx\,\sqrt{1-p^2\,Sin^2 x} = \frac{1}{99225p^8}[-315(16+24p^2+30p^4+35p^6)\frac{\pi}{2}\sqrt{1-p^2}^3 +$
$+(652-141p^2-900p^4-2240p^6)(1-p^2)F'(p) + (4388+1727p^2+1503p^4+2120p^6-$
$-4480p^8)E'(p)]$. Sur 1) à 10) voyez M, D. 16, 28.

11) $\int x\,Sin\,x.Cos\,x\,dx\,\sqrt{1-p^2\,Cos^2 x} = \frac{1}{9p^2}\left[\frac{3}{2}\pi - (2-p^2)2E'(p) + (1-p^2)F'(p)\right]$ (VIII, 588).

12) $\int x\,Sin\,x.Cos^3 x\,dx\,\sqrt{1-p^2\,Cos^2 x} = \frac{1}{225p^4}[15\pi + (1+12p^2)(1-p^2)F'(p) -$
$(31+19p^2-24p^4)E'(p)]$.

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13) $\int x\, Sin\, x\, .\, Cos^5\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{11025 p^6}[420\pi - (62-111p^2-360p^4)(1-p^2)F'(p) - -2(389+176p^2+204p^4-360p^6)E'(p)]$.

14) $\int x\, Sin\, x\, .\, Cos^7\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{99225 p^8}[280\pi - (652-141p^2-900p^4-2240p^6)(1-p^2)F'(p) - (4388+1727p^2+1503p^4+2120p^6-4480p^8)E'(p)]$.

15) $\int x\, Sin^3\, x\, .\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{225 p^4}[-15(2-5p^2)\frac{\pi}{2} - (1-13p^2)(1-p^2)F'(p) + +(31-81p^2+26p^4)E'(p)]$.

16) $\int x\, Sin^3\, x\, .\, Cos^3\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{11025 p^6}[-105(4-7p^2)\pi + 2(31-31p^2+114p^4)(1-p^2)F'(p) + (778-1167p^2-523p^4+456p^6)E'(p)]$.

17) $\int x\, Sin^3\, x\, .\, Cos^5\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{99225 p^8}[-1260(2-3p^2)\pi + (652-699p^2+ +99p^4+1000p^6)(1-p^2)F'(p) + (4388-5275p^2-1665p^4+1552p^6+2000p^8)E'(p)]$.

18) $\int x\, Sin^5 x\, .\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2 x} = \frac{1}{11025 p^6}[105(8-28p^2+35p^4)\frac{\pi}{2} - (62-13p^2-409p^4)(1-p^2)F'(p) - 2(389-1343p^2+1723p^4-409p^6)E'(p)]$.

19) $\int x\, Sin^5\, x\, .\, Cos^3\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{99225 p^8}[315(8-24p^2+21p^4)\pi - (652-1257p^2+ +657p^4-1052p^6)(1-p^2)F'(p) - (4388-12277p^2+8838p^4+3155p^6-2104p^8)E'(p)]$.

20) $\int x\, Sin^7\, x\, .\, Cos\, x\, dx \sqrt{1-p^2\, Cos^2\, x} = \frac{1}{99225 p^8}[-315(16-72p^2+126p^4-105p^6)\frac{\pi}{2} + +(652-1815p^2+774p^4+2629p^6)(1-p^2)F'(p) + (4388-19279p^2+33012p^4- -27859p^6+5258p^8)E'(p)]$. Sur 12) à 20) voyez M, D. 16, 28.

21) $\int x\, Tg\, x\, dx \sqrt[3]{Cos\, x} = \sqrt[4]{27}.\left[(1-\sqrt{3})F'\left(Cos\frac{\pi}{12}\right) + 2\sqrt{3}.E'\left(Cos\frac{\pi}{12}\right)\right]$ V. T. 54, N. 11*.

F. Alg. rat. ent.; Circ. Dir. sous forme irrat. à dén. mon. TABLE 210. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x\, dx}{Tg\, x} \sqrt[3]{Sin\, x} = \frac{3}{2}\pi + \sqrt[4]{27}.\left\{(\sqrt{3}-1)F'\left(Cos\frac{\pi}{12}\right) - 2\sqrt{3}.E'\left(Cos\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 11.

2) $\int \frac{\sqrt{Tg\, x} - \sqrt{Cot\, x}}{Sin\, 2x} x\, dx = -\infty$ (IV, 330).

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3) $\int \frac{x \, Cos\, x}{\sqrt{Sin^3 x}} dx = -\pi + 2\sqrt{2}.F'\left(Sin\frac{\pi}{4}\right)$ V. T. 55, N. 1.

4) $\int \frac{x \, Sin\, x}{\sqrt{Cos^3 x}} dx = \infty$ V. T. 55, N. 1.

5) $\int \frac{x \, Cos\, x}{\sqrt[3]{Sin\, x}} dx = \frac{3}{4}\pi + \frac{3}{2}\sqrt[4]{3}.\left\{\frac{3+\sqrt{3}}{2}F'\left(Sin\frac{\pi}{12}\right) - 3E'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 12.

6) $\int \frac{x \, Sin\, x}{\sqrt[3]{Cos\, x}} dx = \frac{3}{2}\sqrt[4]{3}.\left\{3E'\left(Sin\frac{\pi}{12}\right) - \frac{3+\sqrt{3}}{2}F'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 54, N. 12.

7) $\int \frac{x \, Tg\, x}{\sqrt[3]{Cos\, x}} dx = \infty$ V. T. 55, N. 5.

8) $\int \frac{x \, Tg\, x}{\sqrt[3]{Cos^2 x}} dx = \infty$ V. T. 55, N. 6.

9) $\int \frac{x}{Tg\, x.\sqrt[3]{Sin\, x}} dx = \sqrt[4]{27}.F'\left(Cos\frac{\pi}{12}\right) - \frac{3}{2}\pi$ V. T. 55, N. 5.

10) $\int \frac{x}{Tg\, x.\sqrt[3]{Sin^2 x}} dx = \frac{3}{2}\sqrt[4]{27}.F'\left(Sin\frac{\pi}{12}\right) - \frac{3}{4}\pi$ V. T. 55, N. 6.

F. Alg. rat. ent.; Circ. Dir. à dén. $\sqrt{1-p^2 Sin^2 x}, \sqrt{1-p^2 Sin^2 x}^3$; $[p^2 < 1]$. TABLE 211. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x \, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{2p^2}[-\pi\sqrt{1-p^2} + 2E'(p)]$.

2) $\int \frac{x \, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{9p^4}[(7p^2-5)E'(p) - (1-p^2)F'(p) + 3\pi\sqrt{1-p^2}^3]$.

3) $\int \frac{x \, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{225p^6}[-60\pi\sqrt{1-p^2}^5 + 2(13-19p^2)(1-p^2)F'(p) +$
$+ (94 - 219p^2 + 149p^4)E'(p)]$.

4) $\int \frac{x \, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{3675p^8}[840\pi\sqrt{1-p^2}^7 - (404 - 1041p^2 + 757p^4)(1-p^2)F'(p) -$
$- (1276 - 4217p^2 + 4862p^4 - 2161p^6)E'(p)]$.

5) $\int \frac{x \, Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{9p^4}\left[-3(2+p^2)\frac{\pi}{2}\sqrt{1-p^2} + (1-p^2)F'(p) + (5+2p^2)E'(p)\right]$.

6) $\int \frac{x \, Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{225p^6}[15(4+p^2)\pi\sqrt{1-p^2}^3 - 13(2-p^2)(1-p^2)F'(p) -$
$- 2(47 - 47p^2 - 13p^4)E'(p)]$.

7) $\int \frac{x\, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{11025 p^8} [-420(6+p^2)\pi \sqrt{1-p^2}^5 + (1212 - 1849 p^2 + 409 p^4)(1-p^2) F'(p) + (3828 - 8045 p^2 + 3855 p^4 + 818 p^6) E'(p)]$.

8) $\int \frac{x\, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{225 p^6} \Big[-15(8+4p^2+3p^4)\frac{\pi}{2}\sqrt{1-p^2} + 2(13+6p^2)(1-p^2)F'(p) + (94+31p^2+24p^4)E'(p)\Big]$.

9) $\int \frac{x\, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{11025 p^8} [105(24+8p^2+3p^4)\pi \sqrt{1-p^2}^3 - (1212 - 575 p^2 - 228 p^4)(1-p^2) F'(p) - (3828 - 3439 p^2 - 751 p^4 - 456 p^6) E'(p)]$.

10) $\int \frac{x\, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{1}{3675 p^8} \Big[-105(16+8p^2+6p^4+5p^6)\frac{\pi}{2}\sqrt{1-p^2} + (404+233p^2+120p^4)(1-p^2)F'(p) + (1276+389p^2+256p^4+240p^6)E'(p)\Big]$.

Sur 1) à 10) voyez M, D. 16, 28.

11) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Sin^2 x}} dx = -\frac{\pi}{p^2}\sqrt{1-p^2} + \frac{2}{p^2} E'(p)$ V. T. 53, N. 1.

12) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Sin^2 x}} dx = \frac{4}{9p^4}\Big[5(p^2-2)E'(p) - (1-p^2)\,2\,F'(p) + 3(4-p^2)\frac{\pi}{2}\sqrt{1-p^2}\Big]$

V. T. 53, N. 4 et T. 209, N. 1.

13) $\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p(1-p^2)} Arcsin\, p$.

14) $\int \frac{x\, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{2p^2}\Big[\frac{\pi}{\sqrt{1-p^2}} - 2F'(p)\Big]$.

15) $\int \frac{x\, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p^4}[-\pi\sqrt{1-p^2} + (1-p^2)F'(p) + E'(p)]$.

16) $\int \frac{x\, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{9p^6}[12\pi\sqrt{1-p^2}^3 - (10-9p^2)(1-p^2)F'(p) - 2(7-8p^2)E'(p)]$.

17) $\int \frac{x\, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{75 p^8}[-120\pi\sqrt{1-p^2}^5 + (92 - 171p^2 + 75p^4)(1-p^2)F'(p) + (148 - 323p^2 + 183p^4)E'(p)]$.

18) $\int \frac{x\, Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{p^4}\Big[\frac{\pi}{2\sqrt{1-p^2}}(2-p^2) - F'(p) - E'(p)\Big]$.

19) $\int \frac{x\, Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{1}{9p^6}[-3(4-p^2)\pi\sqrt{1-p^2} + 10(1-p^2)F'(p) + 7(2-p^2)E'(p)]$.

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$$20)\int \frac{x\, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{1}{225 p^8}\left[60(6-p^2)\pi\sqrt{1-p^2}^3 - (276-263p^2)(1-p^2)F'(p) - (444-619p^2+149p^4)E'(p)\right].$$

$$21)\int \frac{x\, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{1}{9p^6}\left[3(8-4p^2-p^4)\frac{\pi}{2\sqrt{1-p^2}} - (10-p^2)F'(p) - 2(7+p^2)E'(p)\right].$$

$$22)\int \frac{x\, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{1}{225 p^8}\left[-15(24-8p^2-p^4)\pi\sqrt{1-p^2} + (276-13p^2)(1-p^2)F'(p) + (444-269p^2-26p^4)E'(p)\right].$$

$$23)\int \frac{x\, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{1}{75 p^8}\left[15(16-8p^2-2p^4-p^6)\frac{\pi}{2\sqrt{1-p^2}} - (92-13p^2-4p^4)F'(p) - (148+27p^2+8p^4)E'(p)\right].$$ Sur 13) à 23) voyez M, D. 16, 28.

$$24)\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{1}{p^2}\left[\frac{\pi}{\sqrt{1-p^2}} - 2F'(p)\right]$$ V. T. 57, N. 1.

$$25)\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{2}{p^4}\left[2(2-p^2)F'(p) + 4E'(p) - \frac{\pi}{\sqrt{1-p^2}}(4-3p^2)\right]$$

V. T. 57, N. 4 et T. 211, N. 1.

$$26)\int \frac{x\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3}\, dx = \frac{\pi}{2\sqrt{1-p^2}} + \frac{1}{2p}\, l\frac{1-p}{1+p}$$ V. T. 57, N. 2.

F. Alg. rat. ent.; Circ. Dir. à dén. $\sqrt{1-p^2 Sin^2 x}^5$; $[p^2<1]$. TABLE 212. Lim. 0 et $\frac{\pi}{2}$.

$$1)\int \frac{x\, Sin\, x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{3(1-p^2)^2}\left[\sqrt{1-p^2} + \frac{2}{p} Arcsin\, p\right].$$

$$2)\int \frac{x\, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right].$$

$$3)\int \frac{x\, Sin\, x \,.\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right].$$

$$4)\int \frac{x\, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{3p^4}\left[\frac{\pi}{\sqrt{1-p^2}} + E'(p) - 3F'(p)\right].$$

$$5)\int \frac{x\, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{3p^6}\left[-4\pi\sqrt{1-p^2} + 6(1-p^2)F'(p) + (2+p^2)E'(p)\right].$$

$$6)\int \frac{x\, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^5}\, dx = \frac{1}{9p^8}\left[24\pi\sqrt{1-p^2}^3 - (28-27p^2)(1-p^2)F'(p) - (20-19p^2-3p^4)E'(p)\right].$$

7) $\int \frac{x\, Sin^2 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)}\left[-1+\frac{p^2\pi}{2\sqrt{1-p^2}}+\frac{1-p^2}{2p}\, l\frac{1+p}{1-p}\right].$

8) $\int \frac{x\, Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^2(1-p^2)^2}\left[\sqrt{1-p^2}-\frac{1-3p^2}{p}\, Arcsin\, p\right].$

9) $\int \frac{x\, Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{6p^4(1-p^2)}\left[\frac{3p^2-2}{\sqrt{1-p^2}}\pi - 2\,E'(p) + 6(1-p^2)F'(p)\right].$

10) $\int \frac{x\, Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^6}\left[(4-3p^2)\frac{\pi}{\sqrt{1-p^2}} - 3(2-p^2)F'(p) - 2\,E'(p)\right].$

11) $\int \frac{x\, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8}[-12(2-p^2)\pi\sqrt{1-p^2} + (28-9p^2)(1-p^2)F'(p) +$
$+ (20-13p^2)E'(p)].$

12) $\int \frac{x\, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3p^6(1-p^2)}\left[-(8-12p^2+3p^4)\frac{\pi}{2\sqrt{1-p^2}} + 6(1-p^2)F'(p) +\right.$
$\left. + (2-3p^2)E'(p)\right].$

13) $\int \frac{x\, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8}\left[3(8-8p^2+p^4)\frac{\pi}{\sqrt{1-p^2}} - (28-19p^2)F'(p) -\right.$
$\left. - (20-7p^2)E'(p)\right].$

14) $\int \frac{x\, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{9p^8(1-p^2)}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2\sqrt{1-p^2}} +\right.$
$\left. + (28-p^2)(1-p^2)F'(p) + (20-21p^2-2p^4)E'(p)\right].$ Sur 1) à 14) voyez M, D. 16, 28.

15) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{2}{3p^2}\;\frac{1}{1-p^2}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$ V. T. 58, N. 1.

16) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{2}{3p^4}\left[\frac{2-p^2}{1-p^2}\, 2\,E'(p) - 12\,F'(p) + \frac{4-5p^2}{\sqrt{1-p^2}^3}\pi\right]$

V. T. 58, N. 4 et T. 211, N. 24.

17) $\int \frac{x\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{3(1-p^2)}\left[(3-2p^2)\frac{\pi}{2\sqrt{1-p^2}} - 1 - \frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right].$

18) $\int \frac{x\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} dx = \frac{1}{6p^2}\left[\frac{2p^2\pi}{\sqrt{1-p^2}} + 2 - \frac{1+2p^2}{p}\, l\frac{1+p}{1-p}\right].$

Sur 17) et 18) voyez M, D. 16, 28.

1) $\int \frac{x\,Sin\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^2(1-p^2)^3}\left[(4+3p^2-2p^4)\sqrt{1-p^2} - 4\frac{1-3p^2}{p}\,Arcsin\,p\right]$.

2) $\int \frac{x\,Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^2(1-p^2)^2}\left[\frac{3\pi}{2\sqrt{1-p^2}} + (1-p^2)\,F'(p) - 2(2-p^2)\,E'(p)\right]$.

3) $\int \frac{x\,Sin\,x\,.\,Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^3 - \frac{1-3p^2}{p}\,Arcsin\,p\right]$.

4) $\int \frac{x\,Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)}\left[\frac{\pi}{\sqrt{1-p^2}} - (1-p^2)\,F'(p) - (1+2p^2)\,E'(p)\right]$.

5) $\int \frac{x\,Sin\,x\,.\,Cos^4 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2} - \frac{3}{p}(1-3p^2)\,Arcsin\,p\right]$.

6) $\int \frac{x\,Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^6}\left[\frac{4\pi}{\sqrt{1-p^2}} - (14+p^2)\,F'(p) + 2(3+p^2)\,E'(p)\right]$.

7) $\int \frac{x\,Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^8}[-24\pi\sqrt{1-p^2} + (44+p^2)(1-p^2)\,F'(p) +$
$+ (4+9p^2+2p^4)\,E'(p)]$.

8) $\int \frac{x\,Sin^2 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^2(1-p^2)^2}\left[(5-2p^2)\frac{p^2\pi}{2\sqrt{1-p^2}} - 2 + \frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$.

9) $\int \frac{x\,Sin^2 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{30p^4(1-p^2)}\left[2\frac{p^4\pi}{\sqrt{1-p^2}} - 6 + (3+2p^2)\frac{1-p^2}{p}\,l\frac{1+p}{1-p}\right]$.

10) $\int \frac{x\,Sin^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)^3}\left[-(1-8p^2+2p^4)\sqrt{1-p^2} + (1-5p^2)\right.$
$\left.(1-3p^2)\frac{1}{p}\,Arcsin\,p\right]$.

11) $\int \frac{x\,Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)^2}\left[-(2-5p^2)\frac{\pi}{2\sqrt{1-p^2}} + (1-p^2)\,F'(p) +\right.$
$\left.+ (1-3p^2)\,E'(p)\right]$.

12) $\int \frac{x\,Sin^3 x\,.\,Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)^2}\left[-(3-11p^2)\sqrt{1-p^2}^3 + (3-5p^2)\right.$
$\left.(1-3p^2)\frac{1}{p}\,Arcsin\,p\right]$.

13) $\int \frac{x\,Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,dx = \frac{1}{15p^6(1-p^2)}\left[-(4-5p^2)\frac{\pi}{\sqrt{1-p^2}} + 14(1-p^2)\,F'(p) -\right.$
$\left.- 3(2-p^2)\,E'(p)\right]$.

14) $$\int \frac{x\, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15 p^8}\left[(6-5p^2)\frac{4\pi}{\sqrt{1-p^2}} - (44-29p^2)\mathrm{F}'(p) - (4+3p^2)\mathrm{E}'(p)\right].$$

15) $$\int \frac{x\, Sin^4 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{30 p^4 (1-p^2)^2}\left[3\frac{p^4 \pi}{\sqrt{1-p^2}} + 2(3-5p^2) - 3\frac{(1-p^2)^2}{p}\, l\, \frac{1+p}{1-p}\right].$$

16) $$\int \frac{x\, Sin^5 x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{30 p^6 (1-p^2)^3}\left[(3-19p^2+41p^4-15p^6)\sqrt{1-p^2} + \right.$$
$$\left. + (3-10p^2+15p^4)(1-3p^2)\frac{1}{p} Arcsin\, p\right].$$

17) $$\int \frac{x\, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15 p^6 (1-p^2)^2}\left[(8-20p^2+15p^4)\frac{\pi}{2\sqrt{1-p^2}} - (14-15p^2)\right.$$
$$\left.(1-p^2)\mathrm{F}'(p) + 2(3-4p^2)\mathrm{E}'(p)\right].$$

18) $$\int \frac{x\, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15 p^8 (1-p^2)}\left[-(24-40p^2+15p^4)\frac{\pi}{\sqrt{1-p^2}} + (44-15p^2)\right.$$
$$\left.(1-p^2)\mathrm{F}'(p) + (4-7p^2)\mathrm{E}'(p)\right].$$

19) $$\int \frac{x\, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15 p^8 (1-p^2)^2}\left[3(16-40p^2+30p^4-5p^6)\frac{\pi}{2\sqrt{1-p^2}} - \right.$$
$$\left. - (44-45p^2)(1-p^2)\mathrm{F}'(p) - (4-17p^2+15p^4)\mathrm{E}'(p)\right].$$

20) $$\int \frac{x\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15(1-p^2)^2}\left[(15-20p^2+8p^4)\frac{\pi}{2\sqrt{1-p^2}} - (7-5p^2) - \right.$$
$$\left. - 4\frac{(1-p^2)^2}{p}\, l\, \frac{1+p}{1-p}\right].$$

21) $$\int \frac{x\, Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{15 p^2 (1-p^2)}\left[(5-4p^2)\frac{p^2\pi}{\sqrt{1-p^2}} + (2-5p^2) - (1+4p^2)\right.$$
$$\left.\frac{1-p^2}{p}\, l\, \frac{1+p}{1-p}\right].$$

22) $$\int \frac{x\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^7}\, dx = \frac{1}{30 p^4}\left[\frac{8p^4\pi}{\sqrt{1-p^2}} + 2(3+5p^2) - (3+4p^2+8p^4)\frac{1}{p}\, l\, \frac{1+p}{1-p}\right].$$

Sur 1) à 22) voyez M, D. 16, 28.

1) $\int \frac{x \, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{2p^2} \{\pi - 2 E'(p)\}$ (VIII, 588).

2) $\int \frac{x \, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{9p^4} [3\pi - (1-p^2) F'(p) - (5+2p^2) E'(p)]$.

3) $\int \frac{x \, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{225 p^6} [60\pi - 2(13+6p^2)(1-p^2) F'(p) - (94+31p^2+24p^4) E'(p)]$.

4) $\int \frac{x \, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{3675 p^8} [840\pi - (414+233p^2+120p^4)(1-p^2) F'(p) -$
$- (1276+389p^2+256p^4+240p^6) E'(p)]$.

5) $\int \frac{x \, Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{9p^4} \left[(3p^2-2)\frac{3\pi}{2} + (1-p^2) F'(p) + (5-7p^2) E'(p)\right]$.

6) $\int \frac{x \, Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{225 p^6} [-15(4-5p^2)\pi + 13(2-p^2)(1-p^2) F'(p) +$
$+ 2(47-47p^2-13p^4) E'(p)]$.

7) $\int \frac{x \, Sin^3 x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{11025 p^8} [-420(6-7p^2)\pi + (1212-575p^2-238p^4)(1-p^2) F'(p) +$
$+ (3828-3439p^2-751p^4-456p^6) E'(p)]$.

8) $\int \frac{x \, Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{225 p^6} \left[15(8-20p^2+15p^4)\frac{\pi}{2} - 2(13-19p^2)(1-p^2) F'(p) -\right.$
$\left. - (94-219p^2+149p^4) E'(p)\right]$.

9) $\int \frac{x \, Sin^5 x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{11025 p^8} [105(24-56p^2+35p^4)\pi - (1212-1849p^2+409p^4)$
$(1-p^2) F'(p) - (3828-8045p^2+3855p^4+818p^6) E'(p)]$.

10) $\int \frac{x \, Sin^7 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{1}{3675 p^8} \left[-105(16-56p^2+70p^4-35p^6)\frac{\pi}{2} + (404-1041p^2+757p^4)\right.$
$\left.(1-p^2) F'(p) + (1276-4217p^2+4862p^4-2161p^6) E'(p)\right]$.

Sur 2) à 10) voyez M, D. 16, 28.

11) $\int \frac{x \, Sin\, 2x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{\pi}{p^2} - \frac{2}{p^2} E'(p)$ (VIII, 588).

12) $\int \frac{x \, Sin\, 4x}{\sqrt{1-p^2 \, Cos^2 x}} dx = \frac{4}{9p^4} \left[(4-3p^2)\frac{3}{2}\pi + (p^2-2) 5 E'(p) - 2(1-p^2) F'(p)\right]$

V. T. 53, N. 4 et T. 209, N. 11.

13) $\int \frac{x\, Sin\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{2p}\, l\, \frac{1+p}{1-p}$ (M, D. 16, 28).

14) $\int \frac{x\, Sin\, x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{p^2}\left[F'(p) - \frac{\pi}{2}\right]$ (VIII, 588).

15) $\int \frac{x\, Sin\, x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{p^4}\left[F'(p) + E'(p) - \pi\right]$.

16) $\int \frac{x\, Sin\, x\, .\, Cos^5 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{9p^6}\left[-12\pi - (10-p^2)F'(p) + 2(7+p^2)E'(p)\right]$.

17) $\int \frac{x\, Sin\, x\, .\, Cos^7 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{75p^8}\left[-120\pi + (92-13p^2-4p^4)F'(p) + (148+27p^2+8p^4)E'(p)\right]$.

18) $\int \frac{x\, Sin^3 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{p^4}\left[(2-p^2)\frac{\pi}{2} - (1-p^2)F'(p) - E'(p)\right]$.

19) $\int \frac{x\, Sin^3 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{9p^6}\left[3(4-3p^2)\pi - 10(1-p^2)F'(p) - 7(2-p^2)E'(p)\right]$.

20) $\int \frac{x\, Sin^3 x\, .\, Cos^5 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{225p^8}\left[60(6-5p^2)\pi - (276-13p^2)(1-p^2)F'(p) + \right.$
$\left. + (444-269p^2-26p^4)E'(p)\right]$.

21) $\int \frac{x\, Sin^5 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{9p^6}\left[-3(8-12p^2+3p^4)\frac{\pi}{2} + (10-9p^2)(1-p^2)F'(p) + \right.$
$\left. + 2(7-8p^2)E'(p)\right]$.

22) $\int \frac{x\, Sin^5 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{225p^8}\left[-15(24-40p^2+15p^4)\pi + (276-263p^2)(1-p^2)F'(p) + \right.$
$\left. + (444-619p^2+149p^4)E'(p)\right]$.

23) $\int \frac{x\, Sin^7 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{75p^8}\left[15(16-40p^2+30p^4-5p^6)\frac{\pi}{2} - (92-171p^2+75p^4)\right.$
$\left.(1-p^2)F'(p) - (148-323p^2+183p^4)E'(p)\right]$. Sur 14) à 23) voyez M, D. 16, 28.

24) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{p^2}\left[2F'(p) - \pi\right]$ (VIII, 588).

25) $\int \frac{x\, Sin\, 4x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{2}{p^4}\left[(2-p^2)2F'(p) + 4E'(p) - (4-p^2)\pi\right]$ V. T. 57, N. 4 et T. 214, N. 11.

26) $\int \frac{x\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^3}\, dx = \frac{1}{1-p^2}\left[\frac{\pi}{2} - \frac{1}{p}\, Arcsin\, p\right]$ (M, D. 16, 28).

1) $\int \frac{x\, Sin\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3}\left[\frac{1}{1-p^2}+\frac{1}{p}\, l\frac{1+p}{1-p}\right]$ (M, D. 16, 28).

2) $\int \frac{x\, Sin\, x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^2(1-p^2)}\left[\mathrm{E}'(p)-(1-p^2)\frac{\pi}{2}\right]$ (VIII, 588).

3) $\int \frac{x\, Sin\, x\, .\, Cos^2 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{6p^2}\left[\frac{2}{1-p^2}-\frac{1}{p}\, l\frac{1+p}{1-p}\right]$.

4) $\int \frac{x\, Sin\, x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^4(1-p^2)}[(1-p^2)\pi-3(1-p^2)\mathrm{F}'(p)+\mathrm{E}'(p)]$.

5) $\int \frac{x\, Sin\, x\, .\, Cos^5 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^6(1-p^2)}[4(1-p^2)\pi-6(1-p^2)\mathrm{F}'(p)-(2-3p^2)\mathrm{E}'(p)]$.

6) $\int \frac{x\, Sin\, x\, .\, Cos^7 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{9p^8(1-p^2)}[24(1-p^2)\pi-(28-p^2)(1-p^2)\mathrm{F}'(p)-$
$-(20-21p^2-2p^4)\mathrm{E}'(p)]$.

7) $\int \frac{x\, Sin^2 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^2(1-p^2)}\left[\frac{1}{2}p^2\pi+\sqrt{1-p^2}-\frac{1}{p}\, Arcsin\, p\right]$.

8) $\int \frac{x\, Sin^3 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{6p^2}\left[-2+(1+2p^2)\frac{1}{p}\, l\frac{1+p}{1-p}\right]$.

9) $\int \frac{x\, Sin^3 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^4}\left[-(2+p^2)\frac{1}{2}\pi+3\,\mathrm{F}'(p)-\mathrm{E}'(p)\right]$.

10) $\int \frac{x\, Sin^3 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^6}[-(4-p^2)\pi+3(2-p^2)\mathrm{F}'(p)+2\,\mathrm{E}'(p)]$.

11) $\int \frac{x\, Sin^3 x\, .\, Cos^5 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{9p^8}[-12(2-p^2)\pi+(28-19p^2)\mathrm{F}'(p)+(20-7p^2)\mathrm{E}'(p)]$.

12) $\int \frac{x\, Sin^5 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^6}\left[(8-4p^2-p^4)\frac{\pi}{2}-6(1-p^2)\mathrm{F}'(p)-(2+p^2)\mathrm{E}'(p)\right]$.

13) $\int \frac{x\, Sin^5 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{9p^8}[3(8-8p^2+p^4)\pi-(28-9p^2)(1-p^2)\mathrm{F}'(p)-(20-13p^2)\mathrm{E}'(p)]$.

14) $\int \frac{x\, Sin^7 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{9p^8}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2}+(28-27p^2)(1-p^2)\mathrm{F}'(p)+\right.$
$\left.+(20-19p^2-3p^4)\mathrm{E}'(p)\right]$. Sur 3) à 14) voyez M, D. 16, 28.

15) $\int \frac{x\, Sin\, 2x}{\sqrt{1-p^2\, Cos^2 x}^5}\, dx = \frac{1}{3p^2}\left[\frac{2}{1-p^2}\mathrm{E}'(p)-\pi\right]$ (VIII, 588).

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16) $\int \frac{x \, Sin\, 4x}{\sqrt{1-p^2 \, Cos^2 x}^5} dx = \frac{2}{3p^4} \left[(4-p^2)\pi - 12\,F'(p) + \frac{2-p^2}{1-p^2} 2\,E'(p)\right]$

V. T. 58, N. 4 et T. 214, N. 24.

17) $\int \frac{x \, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^5} dx = \frac{1}{3(1-p^2)^2} \left[(3-p^2)\frac{\pi}{2} - \sqrt{1-p^2} - \frac{2}{p} Arcsin\, p\right]$.

18) $\int \frac{x \, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^5} dx = \frac{1}{3p^2(1-p^2)^2} \left[p^2 \pi - \sqrt{1-p^2} + \frac{1-3p^2}{p} Arcsin\, p\right]$.

Sur 17) et 18) voyez M, D. 16, 28.

F. Alg. rat. ent.; $[p^2<1]$.
Circ. Dir. à dén. $\sqrt{1-p^2 Cos^2 x}^7$; TABLE 216. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x \, Sin\, x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15} \left[\frac{7-5p^2}{(1-p^2)^2} + \frac{4}{p} l \frac{1+p}{1-p}\right]$.

2) $\int \frac{x \, Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^2(1-p^2)^2} \left[3(1-p^2)^2 \frac{\pi}{2} - (1-p^2)\,F'(p) + 2(2-p^2)\,E'(p)\right]$.

3) $\int \frac{x \, Sin\, x \,.\, Cos^2 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^2} \left[\frac{2}{(1-p^2)^2} - \frac{1}{p} l \frac{1+p}{1-p}\right]$.

4) $\int \frac{x \, Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^4(1-p^2)^2} [(1-p^2)^2 \pi - (1-p^2)\,F'(p) - (1-3p^2)\,E'(p)]$.

5) $\int \frac{x \, Sin\, x \,.\, Cos^4 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{30p^4} \left[-2\frac{3-5p^2}{(1-p^2)^2} + \frac{3}{p} l \frac{1+p}{1-p}\right]$.

6) $\int \frac{x \, Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^6(1-p^2)^2} [-4(1-p^2)^2\pi + (14-15p^2)(1-p^2)\,F'(p) -$
$- 2(3-4p^2)\,E'(p)]$.

7) $\int \frac{x \, Sin\, x \,.\, Cos^7 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^8(1-p^2)^2} [-24(1-p^2)^2\pi + (44-45p^2)(1-p^2)\,F'(p) +$
$+ (4-17p^2+15p^4)\,E'(p)]$.

8) $\int \frac{x \, Sin^2 x \,.\, Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{15p^4(1-p^2)^2} \left[-p^2(2-6p^2+3p^4)\frac{\pi}{2} - (1-2p^2)\sqrt{1-p^2}^3 +\right.$
$\left.+ \frac{1-3p^2}{p} Arcsin\, p\right]$.

9) $\int \frac{x \, Sin^2 x \,.\, Cos^3 x}{\sqrt{1-p^2 \, Cos^2 x}^7} dx = \frac{1}{30p^6(1-p^2)^2} \left[p^2(21-58p^2+54p^4-15p^6)\frac{\pi}{2} + (3-11p^2)\right.$
$\left.\sqrt{1-p^2}^3 - (3-5p^2)(1-3p^2)\frac{1}{p} Arcsin\, p\right]$.

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10) $$\int \frac{x\,Sin^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^2}\left[-\frac{2-5p^2}{1-p^2}+\frac{1+4p^2}{p}\,l\,\frac{1+p}{1-p}\right].$$

11) $$\int \frac{x\,Sin^3 x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)}\left[-(2+3p^2)(1-p^2)\frac{\pi}{2}+(1-p^2)F'(p)+(1+2p^2)E'(p)\right].$$

12) $$\int \frac{x\,Sin^3 x.\,Cos^2 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^4}\left[\frac{6}{1-p^2}-\frac{3+2p^2}{p}\,l\,\frac{1+p}{1-p}\right].$$

13) $$\int \frac{x\,Sin^3 x.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^6(1-p^2)}[(4+p^2)(1-p^2)\pi-14(1-p^2)F'(p)+3(2-p^2)E'(p)].$$

14) $$\int \frac{x\,Sin^3 x.\,Cos^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8(1-p^2)}[4(6-p^2)(1-p^2)\pi-(44-15p^2)(1-p^2)F'(p)-$$
$$-(4-3p^2)E'(p)].$$

15) $$\int \frac{x\,Sin^4 x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)}\left[-3p^2(7-11p^2+3p^4)\frac{\pi}{2}-(3-9p^2-4p^4)\right.$$
$$\left.\sqrt{1-p^2}+\frac{3}{p}(1-3p^2)\,Arcsin\,p\right].$$

16) $$\int \frac{x\,Sin^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^4}\left[-2(3+5p^2)+\frac{3+4p^2+8p^4}{p}\,l\,\frac{1+p}{1-p}\right].$$

17) $$\int \frac{x\,Sin^5 x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^6}\left[-(8+4p^2+3p^4)\frac{\pi}{2}+(14+p^2)F'(p)-2(3+p^2)E'(p)\right].$$

18) $$\int \frac{x\,Sin^5 x.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8}[-(24-8p^2-p^4)\pi+(44-29p^2)F'(p)+(4-3p^2)E'(p)].$$

19) $$\int \frac{x\,Sin^7 x.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^8}\left[3(16-8p^2-2p^4-p^6)\frac{\pi}{2}-(44+p^2)(1-p^2)F'(p)-\right.$$
$$\left.-(4+9p^2+2p^4)E'(p)\right].$$

20) $$\int \frac{x\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^2(1-p^2)^3}\left[p^2(7-6p^2+3p^4)\frac{\pi}{2}-(4+3p^2-2p^4)\sqrt{1-p^2}+\right.$$
$$\left.+\frac{1-3p^2}{p}\,4\,Arcsin\,p\right].$$

21) $$\int \frac{x\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{15p^4(1-p^2)^3}\left[p^2(2-p^2+3p^4)\frac{\pi}{2}+(1-8p^2+2p^4)\sqrt{1-p^2}-\right.$$
$$\left.-(1-5p^2)(1-3p^2)\frac{1}{p}\,Arcsin\,p\right].$$

22) $$\int \frac{x\,Cos^5 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,dx = \frac{1}{30p^6(1-p^2)^3}\left[-p^2(21-83p^2+114p^4-83p^6+15p^8)-\right.$$
$$\left.-(3-19p^2+41p^4-15p^6)\sqrt{1-p^2}+(3-10p^2+15p^4)(1-3p^2)\frac{1}{p}\,Arcsin\,p\right].$$

Sur 1) à 22) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Circ. Dir. sous autre forme irrat. fract.

TABLE 217.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{x \,Sin\, x}{\sqrt{q+p\,Cos\,x}^3}\,dx = \frac{1}{p}\left[\frac{\pi}{\sqrt{q}} - \frac{4}{\sqrt{p+q}}\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right]$ V. T. 56, N. 5.

2) $\int \frac{x \,Sin\, x}{\sqrt{q-p\,Cos\,x}^3}\,dx = \frac{1}{p}\left[\frac{-\pi}{\sqrt{q}} + \frac{4}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2p}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$ V. T. 56, N. 6.

3) $\int \frac{x \,Sin\, 2x}{\sqrt{q+p\,Cos\,x}^3}\,dx = \frac{4}{p^2}\left[-\pi\sqrt{q} + \frac{2}{\sqrt{p+q}}\left\{(p+q)\mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right) + q\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$
V. T. 56, N. 7 et T. 217, N. 1.

4) $\int \frac{x \,Sin\, 2x}{\sqrt{q-p\,Cos\,x}^3}\,dx = \frac{4}{p^2}\left[-\pi\sqrt{q} + \frac{2q}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2p}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\} + \right.$
$\left. + 2\sqrt{p+q}.\left\{\mathrm{E}'\left(\sqrt{\frac{2p}{p+q}}\right) - \mathrm{E}\left(\frac{\pi}{4}, \sqrt{\frac{2p}{p+q}}\right)\right\}\right]$ V. T. 56, N. 8 et T. 217, N. 2.

5) $\int \frac{x \,Sin\, x}{\sqrt{1+p^2\,Cos^2 x}^3}\,dx = \frac{1}{p}\,Arctg\,p$ V. T. 60, N. 5.

6) $\int \frac{x \,Cos\, x}{\sqrt{1+p^2\,Sin^2 x}^3}\,dx = \frac{\pi}{2\sqrt{1+p^2}} - \frac{1}{p}\,Arctg\,p$ V. T. 60, N. 5.

7) $\int \frac{x \,Sin\, 2x}{\sqrt{1+Sin^2 x}^3}\,dx = \frac{-\pi}{\sqrt{2}} + \sqrt{2}\,.\,\mathrm{F}'\left(Sin\,\frac{\pi}{4}\right)$ V. T. 60, N. 1.

8) $\int \frac{x \,Sin\, 2x}{\sqrt{1+Cos^2 x}^3}\,dx = \pi - \sqrt{2}\,.\,\mathrm{F}'\left(Sin\,\frac{\pi}{4}\right)$ (VIII, 588).

9) $\int \frac{1 - x\,Cot\,x}{\sqrt{1 - Cos^2\lambda\,.\,Cos^2 x}}\,\frac{dx}{Sin\,x} = \frac{1}{2}\,\frac{\pi}{1+Cos\,\lambda} + \frac{\lambda\,Cot\,\lambda - 1}{Sin\,\lambda}$ (IV, 332).

10) $\int \frac{Cot\,x + \frac{3}{2}p^2\,Sin\,2x}{\sqrt{1-p^2\,Sin^2 x}}\,\frac{x\,dx}{\sqrt{Sin\,x}} = \left[-\pi\sqrt{1+p^2} + 4\frac{a\mathrm{F}'(a)+b\mathrm{F}'(b)}{(a+b)^2} + 4\frac{b-a}{(a+b)^2}\left\{\mathrm{E}'(b) - \mathrm{E}'(a)\right\}\right]$
$\left[\text{où } 2a^2 = \frac{(1-\sqrt{p})^2}{1+p},\ 2b^2 = \frac{(1+\sqrt{p})^2}{1+p}\right]$ V. T. 55, N. 4.

11) $\int \frac{x}{Sin\,x + Cos\,x}\,\frac{dx}{\sqrt{Sin\,2x}} = \frac{1}{8}\pi^2\sqrt{2}$ V. T. 251, N. 2.

12) $\int \frac{x}{\sqrt[3]{Sin^2 x} + \sqrt[3]{Cos^2 x}}\,\frac{dx}{\sqrt[3]{Sin^2 x\,.\,Cos^2 x}} = \frac{3}{8}\pi^2$ V. T. 251, N. 8.

F. Alg. rat. ent.;
Circ. Dir. ent.

TABLE 218.

Lim. 0 et π.

1) $\int x\,Sin\,ax\,dx = \frac{\pi}{a}\,Cos\left\{(a+1)\pi\right\}$ (VIII, 214).

2) $\int x\,Cos\,ax\,dx = \frac{1}{a^2}(Cos\,a\pi - 1)$ (VIII, 215).

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3) $\int x \, Sin\left\{\left(a-\frac{1}{2}\right)x\right\} dx = \frac{4}{(2a-1)^2} \, Sin\left(\frac{2a-1}{2}\pi\right)$ (IV, 333).

4) $\int x \, Tang \, x \, dx = -\pi \, l \, 2$ V. T. 306, N. 1. 5) $\int x \, Sin x . Cos \, ax \, dx = (-1)^{a+1} \frac{\pi}{a^2-1}$ (IV, 333).

6) $\int x \, Sin \, ax . Cos \, x \, dx = (-1)^a \frac{a\pi}{a^2-1}$ (IV, 333).

7) $\int x \, Sin^q x \, dx = \frac{\pi^2}{2^{q+1}} \frac{\Gamma(q+1)}{\{\Gamma(\frac{1}{2}q+1)\}^2}$ (IV, 333).

8) $\int x \, Sin^{2a} x \, dx = \frac{1}{2}\pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 256). 9) $\int x \, Sin^{2a+1} x \, dx = \pi \frac{2^{a/2}}{3^{a/2}}$ (VIII, 256).

10) $\int x \, Cos^{2a} x \, dx = \frac{1}{2}\pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 256). 11) $\int x Sin x . Cos^{2a} x \, dx = \frac{\pi}{2a+1}$ (IV, 333).

12) $\int \left(\frac{\pi}{2}-x\right) Tg \, x \, dx = \pi \, l \, 2$ V. T. 250, N. 3.

13) $\int x^2 \, Sin \, ax \, dx = \frac{1}{a^3}[(2-a^2\pi^2) \, Cos \, a\pi - 2]$ V. T. 218, N. 2.

14) $\int x^2 \, Cos \, ax \, dx = \frac{2\pi}{a^2} \, Cos \, a\pi$ V. T. 218, N. 1.

15) $\int x \, Sec \, x \, dx = 4 \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 248, N. 2.

F. Alg. rat. ent.; Circ. Dir. en dén. binôme. TABLE 219. Lim. 0 et π.

1) $\int \frac{x^2}{1-Cos\,x} dx = 4\pi \, l \, 2$ V. T. 205, N. 1.

2) $\int \frac{x}{p \pm Cos\,x} dx = \frac{\pi}{2\sqrt{p^2-1}} \pm \frac{4}{\sqrt{p^2-1}} \sum_0^\infty \frac{\{p-\sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p>1]$ (IV, 334).

3) $\int \frac{x}{Cos\,x \pm Cos\,\lambda} dx = -4 \, Cosec\,\lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ (IV, 334).

4) $\int \frac{x \, Sin\,x}{p + Cos\,x} dx = -\pi \, l\{2(1-p)\} \, [p^2<1], = \pi \, l \frac{p+\sqrt{p^2-1}}{2(p-1)} \, [p^2>1]$ (VIII, 589).

5) $\int \frac{x \, Sin\,x}{1-p \, Cos\,x} dx = \frac{\pi}{p} \, l \frac{2(1+p)}{1+\sqrt{1-p^2}} \, [p^2<1], = \frac{\pi}{p} \, l \frac{2p}{1+p} \, [p^2>1]$ (VIII, 589).

6) $\int \frac{x \, Sin\, x}{i \pm Cos\, x} dx = \mp 2\pi \, l \left\{1 \mp (1 - \sqrt{2}) i\right\}$ (IV, 334).

7) $\int \frac{x^a \, Sin\, x}{Cos\, x - Cos\, \lambda} dx = -\pi^a \, l \left\{2(1 + Cos\, \lambda)\right\} - 2 \, . \, 1^{a/1} \, Cos \frac{1}{2} a\pi \, . \sum_0^\infty \frac{Cos\, n\lambda}{n^{a+1}} - 2 \sum_1^\infty \left\{ \frac{Cos\, n\lambda}{n} (-1)^n \right.$
$\left. \sum_1^\infty (-1)^m a^{2m/-1} \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ (IV, 335).

8) $\int \frac{x^a \, Sin\, x}{Cos\, x + Cos\, \lambda} dx = -\pi^a \, l \left\{2(1 - Cos\, \lambda)\right\} + 2 \, . \, 1^{a/1} \, Cos \frac{1}{2} a\pi \, . \sum_0^\infty (-1)^{n-1} \frac{Cos\, n\lambda}{n^{a+1}} - 2 \sum_1^\infty$
$\left\{ \frac{Cos\, n\lambda}{n} \sum_1^\infty (-1)^m a^{2m/-1} \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ (IV, 334).

9) $\int \frac{x^p \, Sin\, x}{Cos\, x \pm q} dx = 2 \, Cos \frac{1}{2} p\pi \, . \, \Gamma(1+p) \sum_1^\infty \frac{(\mp c)^n}{n^{p+1}} - 2\pi^p \, l (1 \mp c) - 2 \sum_1^\infty \frac{(\pm c)^n}{n} \sum_1^\infty \left\{ (-1)^{m-1} p^{2m/-1} \right.$
$\left. \pi^{a-2m} \frac{1}{n^{2m}} \right\}$ [où $c = q - \sqrt{q^2 - 1}$] (IV, 334).

10) $\int \frac{x}{p^2 - Cos^2 x} dx = \frac{\pi}{2p\sqrt{p^2 - 1}} \, [p^2 > 1], = 0 \, [p^2 < 1]$ (VIII, 327).

11) $\int \frac{x \, Sin\, x}{1 + Cos^2 x} dx = \frac{1}{4} \pi^2$ (VIII, 423).

12) $\int \frac{x \, Sin\, x}{1 - Cos^2 \lambda \, . \, Sin^2 x} dx = \pi (\pi - 2\lambda) \, Cosec\, 2\lambda$ (VIII, 423).

13) $\int \frac{x \, Sin\, x}{p^2 - Cos^2 x} dx = \frac{\pi}{2p} \, l \frac{1+p}{1-p} \, [p < 1], = \frac{\pi}{2p} \, l \frac{p+1}{p-1} \, [p > 1]$ V. T. 219, N. 4.

14) $\int \frac{x \, Sin\, x}{Tg^2 \lambda + Cos^2 x} dx = \frac{1}{2} \pi (\pi - 2\lambda) \, Cot\, \lambda$ (VIII, 423*).

15) $\int \frac{x \, Cos\, x}{1 + p \, Sin\, x} dx = \frac{2\pi}{p} \, l \frac{2}{1 + \sqrt{1 + 2p}}$ V. T. 308, N. 14.

16) $\int \frac{x \, Cos\, x}{p^2 - Cos^2 x} dx = \frac{-4}{\sqrt{p^2 - 1}} \sum_0^\infty \frac{\left\{p - \sqrt{p^2 - 1}\right\}^{2n+1}}{(2n+1)^2} \, [p^2 > 1]$ V. T. 219, N. 2.

17) $\int \frac{x \, Cos\, x}{Cos^2 \lambda - Cos^2 x} dx = \frac{4}{Sin\, \lambda} \sum_0^\infty \frac{Sin\left\{(2n+1)\lambda\right\}}{(2n+1)^2}$ V. T. 219, N. 3.

18) $\int \frac{p \, Cos\, x + q}{Cos^2 x + Cot^2 \lambda} \, x \, Sin\, x \, dx = 2p\pi \, l \left(Cos \frac{1}{2} \lambda \right) + \pi q \lambda \, Tg\, \lambda$ (IV, 334).

19) $\int \frac{x \, Sin\, 2x}{p^2 - Cos^2 x} dx = \pi \, l \left\{4(1 - p^2)\right\} [p^2 < 1], = 2\pi \, l \left[2\left\{1 - p^2 + p\sqrt{p^2 - 1}\right\}\right] [p^2 > 1]$
V. T. 219, N. 4.

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1) $\int \frac{x\, Sin\, x}{(1+Cos\,\lambda\,.\,Cos\,x)^2}\,dx = \pi\sqrt{2}\,.\,Cosec\,\lambda\,.\,Cosec\,\frac{1}{2}\lambda\,.\,Cosec\left(\frac{\pi+2\lambda}{4}\right)$ V. T. 64, N. 12.

2) $\int \frac{x\, Cos\, x}{(1+Cos\,\lambda\,.\,Sin\,x)^2}\,dx = \frac{4\lambda}{Sin\,2\lambda} - \frac{\pi}{Cos\,\lambda}$ (IV, 336).

3) $\int \frac{x\, Sin\, x}{(p+q\,Cos\,x)^2}\,dx = \frac{\pi}{q}\left\{\frac{1}{p-q} - \frac{1}{\sqrt{p^2-q^2}}\right\}$ $[p^2>q^2]$ V. T. 64, N. 12.

4) $\int \frac{x^2\, Sin\, x}{(p\pm Cos\,x)^2}\,dx = \frac{\mp\pi}{\sqrt{p^2-1}} - \frac{\pi^2}{1\mp p} - \frac{8}{\sqrt{p^2-1}}\sum_0^\infty \frac{\{p-\sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p>1]$ V. T. 219, N. 2.

5) $\int \frac{x^2\, Sin\, x}{(Cos\,x\pm Cos\,\lambda)^2}\,dx = \frac{-\pi^2}{1\mp Cos\,\lambda} + \frac{8}{Sin\,\lambda}\sum_0^\infty \frac{Sin\,\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 219, N. 3.

6) $\int \frac{1\pm p\,Cos\,x}{(p\pm Cos\,x)^2}\,x^2\,dx = 2\pi\,l\,\{2(1\mp p)\}$ $[p^2<1]$, $= 4\pi\,l\,\{1\mp p\pm\sqrt{p^2-1}\}$ $[p^2>1]$
V. T. 219, N. 4.

7) $\int \frac{x\, Sin\, x}{(p+q\,Cos\,x)^3}\,dx = \frac{\pi}{2q(q-p)^2}$ $[p^2<q^2]$, $= \frac{\pi}{2q(p-q)^2}\left(1-p\sqrt{\frac{p-q}{(p+q)^3}}\right)$ $[p^2>q^2]$
(VIII, 587).

8) $\int \frac{x\, Sin\,2x}{(1-Cos^2\lambda\,.\,Sin^2 x)^2}\,dx = 2\pi\,\frac{Sin\,\lambda-1}{Cos\,\lambda\,.\,Sin\,2\lambda}$ V. T. 220, N. 2.

9) $\int \frac{x^2\, Sin\,2x}{(p^2-Cos^2 x)^2}\,dx = \frac{\pi}{p}\,\frac{\sqrt{p^2-1}-2p}{p^2-1}$ $[p^2>1]$ V. T. 219, N. 10.

10) $\int \frac{q\,Cos\,2x - Sin^2 x}{(q+Sin^2 x)^2}\,x^2\,dx = -4\pi\,l\,[2\{-q+\sqrt{q(q+1)}\}]$ V. T. 219, N. 19.

11) $\int \frac{q\,Cos\,2x + Sin^2 x}{(q-Sin^2 x)^2}\,x^2\,dx = 2\pi\,l(1+q)$ V. T. 219, N. 19.

12) $\int \frac{p^2-1-Sin^2 x}{(p^2-Cos^2 x)^2}\,x^2\,Cos\,x\,dx = \frac{\pi}{p}\,l\,\frac{1-p}{1+p}$ $[p<1]$, $= \frac{\pi}{p}\,l\,\frac{p-1}{p+1}$ $[p>1]$ V. T. 219, N. 13.

13) $\int \frac{x\, Sin\,2x}{(p^2\,Sin^2 x + q^2\,Cos^2 x)^2}\,dx = \frac{-\pi}{pq^2(p+q)}$ (VIII, 588*).

14) $\int \frac{x\, Sin\,2x}{(p^2\,Sin^2 x + q^2\,Cos^2 x)^3}\,dx = \frac{-\pi}{4p^3 q^4}\,\frac{2p^2+pq+q^2}{p+q}$ V. T. 48, N. 13.

1) $\int \frac{x\,Sin\,x}{1+q+q\,Cos\,x}\,dx = \frac{2\pi}{q}\,l\,\frac{1+\sqrt{1+2q}}{2}$ V. T. 305, N. 9.

2) $\int \frac{x\,Sin\,x}{1-2r\,Cos\,x+r^2}\,dx = \frac{\pi}{r}\,l(1+r)\,[r^2<1], = \frac{\pi}{r}\,l\,\frac{1+r}{r}\,[r^2>1]$ (VIII, 678*).

3) $\int \frac{Sin\,b\,x}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^{a+1}\,\frac{\pi p^b}{1-p^2}(lp)^{2a+1}$ (VIII, 575).

4) $\int \frac{Sin\,b\,x\,.\,Sin\,x}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2}\,p^{b-1}\,(lp)^{2a}$ (VIII, 575).

5) $\int \frac{Sin\,b\,x\,.\,Cos\,x}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^a\,\frac{\pi}{2}\,\frac{1+p^2}{1-p^2}\,p^{b-1}\,(lp)^{2a+1}$ (VIII, 575).

6) $\int \frac{Cos\,b\,x}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi p^b}{1-p^2}(lp)^{2a}$ (VIII, 575).

7) $\int \frac{Cos\,b\,x\,.\,Sin\,x}{1-2p\,Cos\,x+p^2}\,x^{2a+1}\,dx = (-1)^a\,\frac{\pi}{2}\,p^{b-1}\,(lp)^{2a+1}$ (VIII, 575).

8) $\int \frac{Cos\,b\,x\,.\,Cos\,x}{1-2p\,Cos\,x+p^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2}\,\frac{1+p^2}{1-p^2}\,p^{b-1}\,(lp)^{2a}$ (VIII, 575).

9) $\int \frac{Sin\,\{(2b+1)x\}}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 3.

10) $\int \frac{Sin\,2\,b\,x\,.\,Sin\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 4.

11) $\int \frac{Sin\,2\,b\,x\,.\,Cos\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 3.

12) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Sin\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = (-1)^a\,\frac{\pi}{2^{2a+2}}\,\frac{q^b}{1+q}(lq)^{2a}$ V. T. 221, N. 4.

13) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Cos\,x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = (-1)^{a+1}\,\frac{\pi}{2^{2a+3}}\,\frac{q^b}{1-q}(lq)^{2a+1}$ V. T. 221, N. 3.

14) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Sin\,2x}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 4.

15) $\int \frac{Sin\,\{(2b+1)x\}\,.\,Cos\,2x}{1-2q\,Cos\,2x+q^2}\,x^{2a+1}\,dx = 0$ V. T. 221, N. 9, 21.

16) $\int \frac{Cos\,\{(2b+1)x\}}{1-2q\,Cos\,2x+q^2}\,x^{2a}\,dx = 0$ V. T. 221, N. 6.

17) $\int \frac{Cos\,2\,b\,x\,.\,Sin\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a+1}\,d\,x=0$ V. T. 221, N. 7.

18) $\int \frac{Cos\,2\,b\,x\,.\,Cos\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a}\,d\,x=0$ V. T. 221, N. 6.

19) $\int \frac{Cos\{(2\,b+1)x\}.Sin\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a+1}\,d\,x=(-1)^a\frac{\pi}{2^{2\,a+3}}\,\frac{q^b}{1+q}(l\,q)^{2\,a+1}$ V. T. 221, N. 7.

20) $\int \frac{Cos\{(2\,b+1)x\}.Cos\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a}\,d\,x=(-1)^a\frac{\pi}{2^{2\,a+2}}\,\frac{q^b}{1-q}(l\,q)^{2\,a}$ V. T. 221, N. 6.

21) $\int \frac{Cos\{(2\,b+1)x\}.Sin\,2\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a+1}\,d\,x=0$ V. T. 221, N. 8.

22) $\int \frac{Cos\{(2\,b+1)x\}.Cos\,2\,x}{1-2\,q\,Cos\,2\,x+q^2}\,x^{2\,a}\,d\,x=0$ V. T. 221, N. 14, 16.

[Dans 9) à 22) on a $0<q<1$.]

F. Alg. rat. ent.; Circ. Dir. en dén. d' autre forme. TABLE 222. Lim. 0 et π.

1) $\int \frac{x\,Sin\,x}{q^2+2\,q\,Cos\,\lambda\,.\,Cos\,x+Cos^2\,x}\,d\,x=\frac{2\,\pi}{q}\,Cosec\,\lambda\,.\,Arctg\left(\frac{h\,Sin\,\theta-q\,Sin\,\lambda}{1-q\,Cos\,\lambda+h\,Cos\,\theta}\right)$ V. T. 222, N. 2, 3.

2) $\int \frac{Cos\,x+q\,Cos\,\lambda}{q^2+2\,q\,Cos\,\lambda\,.\,Cos\,x+Cos^2\,x}\,x\,Sin\,x\,d\,x=-\pi\,l\{1-2\,q\,Cos\,\lambda+2\,h\,Cos\,\theta+q^2+h^2-2\,q\,h\,Cos(\lambda-\theta)\}$

3) $\int \frac{r+p\,Cos\,x}{q^2+2\,q\,Cos\,\lambda\,.\,Cos\,x+Cos^2\,x}\,x\,Sin\,x\,d\,x=-\pi\,p\,l\{1-2\,q\,Cos\,\lambda+2\,h\,Cos\,\theta+q^2+h^2-2\,q\,h$
$Cos(\lambda-\theta)\}+\frac{r-p\,q\,Cos\,\lambda}{q\,Sin\,\lambda}\,2\,\pi\,Arctg\left(\frac{h\,Sin\,\theta-q\,Sin\,\lambda}{1-q\,Cos\,\lambda+h\,Cos\,\theta}\right)$ (IV, 340).

[Dans 1) à 3) on a $Tg\,2\,\theta=\frac{q^2\,Sin\,2\,\lambda}{q^2\,Cos\,2\,\lambda-1}$, $h^2=1-2\,q^2\,Cos\,2\,\lambda+q^4$.]

4) $\int \frac{\frac{1}{2}\pi-x}{Sin^2\,x+(p\,Sin\,x+q\,Cos\,x)^2}\,d\,x=\frac{\pi}{q}\left\{\frac{1}{2}\,Arctg\left(\frac{2\,p\,q}{1+p^2-q^2}\right)-Arctg\left(\frac{2\,p}{1-p^2-q^2}\right)\right\}$
V. T. 254, N. 8.

5) $\int \frac{Sin\,x}{1-Cos\,\lambda\,.\,Cos\,x}\,\frac{x}{1-Cos\,\mu\,.\,Cos\,x}\,d\,x=\pi\,Cosec\left\{\frac{1}{2}(\lambda+\mu)\right\}.\,Cosec\left\{\frac{1}{2}(\lambda-\mu)\right\}.\,l\,\frac{1+Tg\,\frac{1}{2}\lambda}{1+Tg\,\frac{1}{2}\mu}$
V. T. 219, N. 5.

6) $\int \frac{x\,Sin\,x}{(1-2\,p\,Cos\,x+p^2)^2}\,d\,x=\frac{\pi}{(1-p)(1+p)^2}\,[p^2<1],=\frac{\pi}{p\,(p-1)(p+1)^2}\,[p^2>1]$
V. T. 65, N. 1.

7) $\int \frac{(1+p^2) Cos x - 2p}{(1-2p Cos x + p^2)^2} x^2 dx = \frac{2\pi}{p} l \frac{p}{1+p} [p^2 \geqq 1], = -\frac{2\pi}{p} l(1+p) [p^2 < 1]$

V. T. 221, N. 2.

8) $\int \frac{x Sin x}{(1-2p Cos x + p^2)^3} dx = \frac{p^2 - 2p + 2}{2(1+p)^4 (1-p)^3} [p^2 < 1], = \frac{2p^2 - 2p + 1}{2p(p+1)^4 (p-1)^3} [p^2 > 1]$

V. T. 66, N. 2.

9) $\int \frac{x Sin x}{(1-2p Cos x + p^2)^{a+1}} dx = \frac{\pi}{2pa} \left\{ \frac{-1}{(1+p)^{2a}} + \frac{1}{(1-p^2)^{2a-1}} \sum_0^{a-1} \binom{a-1}{n}^2 p^{2n} \right\} [p^2 < 1], =$

$= \frac{\pi}{2pa} \left\{ \frac{-1}{(1+p)^{2a}} + \frac{1}{(p^2-1)^{2a-1}} \sum_0^{a-1} \binom{a-1}{n}^2 p^{2n} \right\} [p^2 > 1]$ V. T. 66, N. 2.

10) $\int \frac{x Sin 2x}{\sqrt{1-p^2 Sin^2 x}^3} dx = \frac{2}{p^2} \{\pi - 2F'(p)\}$ (VIII, 588).

11) $\int \frac{x Sin x}{\sqrt{1-2p Cos x + p^2}^3} dx = \frac{1}{p} \left\{ 2F'(p) - \frac{\pi}{1+p} \right\}$ (VIII, 588).

F. Alg. rat. ent.; Circ. Dir. TABLE 223. Lim. 0 et 2π.

1) $\int \frac{x dx}{Sin x} = 3\pi l 2$ V. T. 250, N. 7.

2) $\int \frac{Sin a x}{1 \pm p Cos x} x dx = \frac{2\pi}{\sqrt{1-p^2}} \left\{ (\mp 1)^a \frac{\{1+\sqrt{1-p^2}\}^a - \{1-\sqrt{1-p^2}\}^a}{p^a} l \frac{2\sqrt{1 \pm p}}{\sqrt{1+p}+\sqrt{1-p}} + \right.$

$\left. + \sum_1^{a-1} \frac{(\mp 1)^n}{a-n} \frac{\{1+\sqrt{1-p^2}\}^n - \{1-\sqrt{1-p^2}\}^n}{p^n} \right\} [p^2 < 1]$ (IV, 342).

3) $\int \frac{Cos a x}{1 \pm p Cos x} x dx = \frac{2\pi^2}{\sqrt{1-p^2}} \left(\frac{1-\sqrt{1-p^2}}{\pm p} \right)^a [p^2 < 1]$ (IV, 342).

4) $\int \frac{x Sin x}{1-2p Cos x + p^2} dx = \frac{2\pi}{p} l(1-p) [p^2 < 1], = \frac{2\pi}{p} l \frac{p-1}{p} [p^2 > 1]$ V. T. 332, N. 1.

5) $\int \frac{x Sin a x}{1-2p Cos x + p^2} dx = \frac{2\pi}{1-p^2} \left\{ (p^{-a} - p^a) l(1-p) + \sum_1^{a-1} \frac{p^{-n} - p^n}{a-n} \right\}$ (IV, 342).

6) $\int \frac{Sin b x}{1-2p Cos x + p^2} x^{2a+1} dx = (-1)^{a+1} \frac{\pi p^b}{1-p^2} (lp)^{2a+1}$ V. T. 221, N. 3.

7) $\int \frac{Sin b x . Sin x}{1-2p Cos x + p^2} x^{2a} dx = (-1)^a \frac{\pi}{2} p^{b-1} (lp)^{2a}$ V. T. 221, N. 4.

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8) $\int \frac{Sin\, b x \,.\, Cos\, x}{1-2p\, Cos\, x+p^2} x^{2a+1}\, dx = (-1)^{a+1} \frac{\pi}{2} \frac{1+p^2}{1-p^2} p^{b-1} (lp)^{2a+1}$ V. T. 221, N. 5.

9) $\int \frac{Sin\, a x - p\, Sin\left\{(a+1)x\right\}}{1-2p\, Cos\, x+p^2} x\, dx = 2\pi p^a \left\{l(1-p)+\sum_1^a \frac{1}{np^n}\right\}$ (VIII, 484).

10) $\int \frac{Cos\, b x}{1-2p\, Cos\, x+p^2} x^{2a}\, dx = (-1)^a \frac{\pi p^b}{1-p^2} (lp)^{2a}$ V. T. 221, N. 6.

11) $\int \frac{Cos\, b x \,.\, Sin\, x}{1-2p\, Cos\, x+p^2} x^{2a+1}\, dx = (-1)^a \frac{\pi}{2} p^{b-1} (lp)^{2a+1}$ V. T. 221, N. 7.

12) $\int \frac{Cos\, b x \,.\, Cos\, x}{1-2p\, Cos\, x+p^2} x^{2a}\, dx = (-1)^a \frac{\pi}{2} \frac{1+p^2}{1-p^2} p^{b-1} (lp)^{2a}$ V. T. 221, N. 8.

[Dans 5) à 12) on a $0 \leqq p \leqq 1$.]

13) $\int \frac{Cos\, a x - p\, Cos\left\{(a+1)x\right\}}{1-2p\, Cos\, x+p^2} x\, dx = 2\pi^2 p^a \; [p^2 < 1]$ (VIII, 484).

F. Algébr. rat.; Circ. Dir. — TABLE 224. — Lim. 0 et p.

1) $\int Sin\, q x \frac{dx}{x} = Si(pq)$ (VIII, 289).

2) $\int x\, Sin\, x\, dx \sqrt{Sin^2 p - Sin^2 x} = \frac{1}{8}\pi\, Sin^2 p + \frac{1}{4}\pi\, Cos^2 p \,.\, l\, Cos\, p$ (IV, 344).

3) $\int \sqrt{Sin^2 p - Sin^2 x} \frac{x\, dx}{Sin\, x} = \frac{\pi}{4}(1+Sin\, p)\, l(1+Sin\, p) + \frac{\pi}{4}(1-Sin\, p)\, l(1-Sin\, p)$ (IV, 344).

4) $\int \frac{x\, Sin\, x}{\sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{2} l\, Sec\, p$ (IV, 344).

5) $\int \frac{x\, Sin^3 x}{\sqrt{Sin^2 p - Sin^2 x}} dx = -\frac{\pi}{4}(1+Sin^2 p)\, l\, Cos\, p - \frac{\pi}{8} Sin^2 p$ V. T. 224, N. 2, 4.

6) $\int \frac{x}{Sin\, x \,.\, \sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{4} Cosec\, p \,.\, l \frac{1+Sin\, p}{1-Sin\, p}$ (IV, 344).

7) $\int \frac{x\, Sin\, x}{Cos^2 x \,.\, \sqrt{Sin^2 p - Sin^2 x}} dx = \frac{\pi}{2} Sec^2 p \,.\, (1-Cos\, p)$ (IV, 344).

8) $\int \frac{x\, Sin\, x}{1-Sin^2 q \,.\, Sin^2 x} \frac{dx}{\sqrt{Sin^2 p - Sin^2 x}} = \frac{\pi}{2\, Cos\, q} \frac{1}{1-Sin^2 p \,.\, Sin^2 q} l \frac{Cos\, q + \sqrt{1-Sin^2 p \,.\, Sin^2 q}}{2\, Cos\, p \,.\, Sin^2 \frac{1}{2} q}$ (IV, 344).

9) $$\int \frac{x \,Sin\, x}{Sin^2 q - Sin^2 x} \frac{dx}{\sqrt{Sin^2 p - Sin^2 x}} = \frac{\pi \,Sec\, q}{2\sqrt{Sin^2 q - Sin^2 p}} \left\{ q - Arccos\left(\frac{Cos\, q}{Cos\, p}\right)\right\}$$ (IV, 344).

10) $$\int \frac{1 - x \,Cot\, x}{Sin^2 x . \sqrt{Sin^2 p - Sin^2 x}} Cos\, x\, dx = \frac{\pi}{4} Cosec^3 p - \frac{\pi}{8} Cos^2 p . Cosec^3 p . l \frac{1 + Sin\, p}{1 - Sin\, p}$$ (IV, 344).

F. Algébr. rat.; Circ. Dir. — TABLE 225. — Lim. p et q.

1) $$\int \frac{x}{\sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2} Sec\, p . Cosec\, q . \mathrm{F}(c, q)$$ (VIII, 310).

2) $$\int \frac{x}{Sin^2 x . \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2} \frac{Sin\, p - Sin\, q}{Sin^2 p . Sin\, q} + \frac{\pi}{2 \,Cos\, p . Sin\, q} \mathrm{F}(c, q) + \frac{\pi \,Cos\, p}{2 \,Sin^2 p . Sin\, q} \mathrm{E}(c, q)$$ (VIII, 310).

3) $$\int \frac{x}{Cos^2 x . \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2} \frac{Cos\, q - Cos\, p}{Cos^2 p . Cos\, q} + \frac{\pi}{2 \,Cos\, p . Sin\, q} \mathrm{F}(c, q) + \frac{\pi \,Sin\, q}{2 \,Cos\, p . Cos^2 q} \mathrm{E}(c, q)$$ (VIII, 310).

4) $$\int \frac{x \,Sin^2 x}{\sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2 Cos\, p . Sin\, q} \mathrm{F}(c, q) - \frac{\pi \,Cos^2 q}{2 Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) - \frac{\pi}{4} l(1 + Sin^2 q - Sin^2 p)$$ (IV, 345).

5) $$\int \frac{x \,Sin^4 x}{\sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{1}{8}(Sin^2 q - Sin^2 p) + \frac{\pi}{4 Cos\, p . Sin\, q}(2 - Cos^2 p . Cos^2 q) \mathrm{F}(c, q) - \frac{\pi}{4} Cos\, p . Sin\, q . \mathrm{E}(c, q) - \frac{1}{8}(1 + Sin^2 p + Sin^2 q) \pi \, l(1 - Sin^2 p + Sin^2 q) - \frac{\pi \,Cos^2 q}{4 \,Cos\, p . Sin\, q}(1 + Sin^2 p + Sin^2 q) \Pi(-Sin^2 \theta, c, q)$$ (IV, 346).

6) $$\int x\, dx \sqrt{\frac{Sin^2 q - Sin^2 x}{Sin^2 x - Sin^2 p}} = \frac{\pi}{4} l(1 - Sin^2 p + Sin^2 q) + \frac{\pi \,Cos^2 q}{2 \,Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) - \frac{\pi \,Cos^2 q}{2 \,Cos\, p . Sin\, q} \mathrm{F}(c, q)$$ V. T. 225, N. 1, 4.

7) $$\int x\, dx \sqrt{\frac{Sin^2 x - Sin^2 p}{Sin^2 q - Sin^2 x}} = -\frac{\pi}{4} l(1 - Sin^2 p + Sin^2 q) - \frac{\pi \,Cos^2 q}{2 Cos\, p . Sin\, q} \Pi(-Sin^2 \theta, c, q) + \frac{\pi \,Cos\, p}{2 \,Sin\, q} \mathrm{F}(c, q)$$ V. T. 225, N. 1, 4.

F. Algébr. rat.; Circ. Dir.	TABLE 225, suite.	Lim. p et q.

8) $\int \frac{x\,Tg^2 x}{\sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi\, Sin\, q}{2\, Cos\, p \,.\, Cos^2 q} \{E(c,q) - Cot\, q + Cot\, q \,.\, Cos\, q \,.\, Sec\, p\}$ (VIII, 310).

9) $\int \frac{x}{Tg^2 x \,.\, \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{2\, Sin\, p \,.\, Tg\, p \,.\, Sin\, q} \left\{E(c,q) + \frac{Sin\, p - Sin\, q}{Cos\, p}\right\}$ (VIII, 310).

10) $\int \frac{x}{Cos^4 x \,.\, \sqrt{(Sin^2 x - Sin^2 p)(Sin^2 q - Sin^2 x)}} dx = \frac{\pi}{12\, Cos^4 p \,.\, Cos^3 q \,.\, Sin\, q} \{(Cos^2 p + Cos^2 q +$
$+ Cos^2 p \,.\, Cos^2 q)\, 2\, Sin\, 2q - (3\, Cos^2 p + 3\, Cos^2 q + 4\, Cos^2 p \,.\, Cos^2 q + 2\, Cos\, p \,.\, Cos\, q)\, Cos\, p \,.\, Sin\, q +$
$+ (2\, Cos^2 p \,.\, Cos^2 q + Cos^2 p + Cos^2 q - 1)\, 2\, Cos\, p \,.\, Cos\, q \,.\, F(c,q) + (Cos^2 p + Cos^2 q + Cos^2 p \,.\, Cos^2 q)$
$4\, Cos\, p \,.\, Sin\, q \,.\, Tg\, q \,.\, E(c,q)\}$ (IV, 347*).

[Partout on a ici $Cos\,\theta = Cos\, q \,.\, Sec\, p$, $c = Sin\,\theta \,.\, Cosec\, q$.]

F. Algébrique; Circ. Dir.	TABLE 226.	Limites diverses.

1) $\int_q^\infty Cos\, px \frac{dx}{x} = -Ci(pq)$ (VIII, 289).

2) $\int_0^{2a\pi} Cos\, px \,.\, x^b\, dx = -\sum_0^{b-1} \frac{1^{n/1}}{p^{n+1}} \binom{b}{n} (2a\pi)^{b-n} Cos\left(\frac{n+1}{2}\pi\right)$ (VIII, 248).

3) $\int_{a\pi}^{c\pi} x\, Cos^{2b} x\, dx = \frac{c^2 - a^2}{2} \pi^2 \frac{1^{b/2}}{2^{b/2}}$ (VIII, 248).

4) $\int_\lambda^{\frac{\pi}{2}} \frac{x\, Cos\, x}{\sqrt{Sin^2 x - Sin^2 \lambda}} dx = \frac{\pi}{2} l(1 + Cos\,\lambda)$ (IV, 348).

5) $\int_\lambda^{\frac{\pi}{2}} \frac{x\, Cos\, x}{Sin^2 x \,.\, \sqrt{Sin^2 x - Sin^2 \lambda}} dx = \frac{\pi}{2} Cosec\,\lambda \,.\, \left(1 - Tg\, \frac{1}{2}\lambda\right)$ (IV, 348).

F. Algébr.; Circ. Dir.	Intégrales Limites. [Lim. $k = 0$]. TABLE 227.	Limites diverses.

1) $\int_0^\infty Sin\, kx \frac{dx}{x} = \frac{1}{2}\pi$ (IV, 269).

2) $\int_0^\infty Sin\, x \frac{dx}{x^k} = 1$ (IV, 275).

3) $\int_0^\infty Cos\, x \frac{dx}{x^k} = \frac{1}{2} k\pi$ (IV, 277).

4) $\int_0^\infty Sin\, kx \frac{x\, dx}{1+x^2} = \frac{1}{2}\pi$ (IV, 282).

5) $\int_0^\infty Sin\{(q+k)x\} \,.\, Cos\{(q-k)x\} \frac{x\, dx}{1+x^2} = \frac{\pi}{4}(1 + e^{-2q})$ (IV, 282).

6) $\int_0^\infty \frac{Sin\{(q-k)x\}}{Cos\,qx}\frac{dx}{x}=0$ (IV, 296). 7) $\int_0^\infty \frac{Cos\{(q+k)x\}}{Sin\,qx}\frac{x\,dx}{1+x^2}=\frac{\pi e^{-q}}{e^q-e^{-q}}-\frac{\pi}{2}$ (IV, 297).

8) $\int_0^\infty \frac{Cos\{(q-k)x\}}{Sin\,qx}\frac{x}{1+x^2}dx=\frac{\pi}{2}\frac{e^q+e^{-q}}{e^q-e^{-q}}$ (IV, 297).

9) $\int_0^\infty \frac{Cos\{[(2a+1)q\pm k]x\}}{Sin\,qx}\frac{x}{1+x^2}dx=\pi\frac{e^{-(2a+1)q}}{e^q-e^{-q}}\mp\frac{\pi}{2}$ (IV, 297).

10) $\int_0^\infty \frac{Sin\{(2a+1)qx\}.Sin\,kx}{Sin\,qx}\frac{x}{1+x^2}dx=\frac{\pi}{2}$ (IV, 297).

11) $\int_0^\infty \frac{x\,Sin\,x}{(Cos\,x-q)^2-k^2}dx=-\frac{\pi}{1+q}$ (IV, 340). 12) $\int_1^q Cos\,kx\frac{dx}{x}=lq$ (VIII, 337).

F. Algébr.; Circ. Dir. } Intégrales Limites. [Lim. $k=\infty$]. TABLE 228. Limites diverses.

1) $\int_0^\infty \frac{Sin\,kx}{1+x}dx=0$ (IV, 281). 2) $\int_0^\infty \frac{Cos\,kx}{1+x}dx=0$ (IV, 281).

3) $\int_0^\infty \frac{Sin\{(2k+1)x\}.Tg\,x}{Sin\,x}\frac{x}{p^2+x^2}dx=\infty$ (IV, 299).

4) $\int_0^\infty Sin\{(2k+1)x\}.Tg\,x\frac{dx}{p^2+x^2}=\infty$ (IV, 299).

5) $\int_0^\infty \frac{Cos\,2kx.Cot\,x}{Sin\,x}\frac{x\,dx}{p^2+x^2}=\infty$ (IV, 299). 6) $\int_0^\infty \frac{Cos\{(2k+1)x\}}{Sin\,x}\frac{x\,dx}{p^2+x^2}=0$ (IV, 299*).

7) $\int_0^\infty \frac{Sin\{(2k+1)x\}}{Cos\,x}\frac{dx}{p^2+x^2}=0$ (IV, 299*). 8) $\int_0^\infty \frac{Cos\,2kx}{Cos\,x}\frac{dx}{p^2+x^2}=0$ (IV, 299*).

9) $\int_0^\infty Sin\,kx\,dx\sqrt{\frac{x}{x^2-1}}=(Cos\,k+Sin\,k)\sqrt{\frac{\pi}{4k}}$ (IV, 320).

10) $\int_0^\infty Cos\,kx\,dx\sqrt{\frac{x}{x^2-1}}=(Cos\,k-Sin\,k)\sqrt{\frac{\pi}{4k}}$ (IV, 322).

11) $\int_0^\infty \frac{Cos\,kx}{(q+2p\,Cos\,x)^a}dx=\frac{a^{k|1}}{1^{k|1}}(q^2-4p^2)^{-\frac{1}{2}a}\left\{\frac{-4p}{q+\sqrt{q^2-4p^2}}\right\}^k\sqrt{\frac{\pi}{k}}$ (IV, 338).

12) $\int_1^\infty Cos\,kx\frac{dx}{x}=0$ (IV, 347).

13) $\int_0^a \frac{Sin\{(2k+1)x\}}{Cos\,x}\frac{dx}{p^2+x^2}=0\left[a<\frac{1}{2}\pi\right],=\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

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14) $\int_0^a \frac{Sin\{(2k+1)x\}}{Cos\,x}\,\frac{x}{p^2+x^2}\,dx = 0\left[a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 376).

15) $\int_0^a \frac{Sin\{[1\pm(4k+1)]x\}}{Cos\,x}\,\frac{dx}{p^2+x^2} = \frac{2\pi}{4p^2+\pi^2}\left[a=\frac{1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{4\pi}{4p^2+\pi^2} - \frac{2\pi}{4p^2+9\pi^2}\left[a=\frac{3\pi}{2}\right], = \frac{4\pi}{4p^2+\pi^2} - \frac{4\pi}{4p^2+9\pi^2} + \ldots - \frac{4\pi\,Cos\,b\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{2\pi\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}\left[a=\frac{2b+1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} - \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\,c<\pi\right]$ (VIII, 376).

16) $\int_0^a \frac{Sin\{[1\pm(4k+1)]x\}}{Cos\,x}\,\frac{x}{p^2+x^2}\,dx = \frac{\pi^2}{4p^2+\pi^2}\left[a=\frac{1}{2}\pi\right], = \frac{2\pi^2}{4p^2+\pi^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{2\pi^2}{4p^2+\pi^2} - \frac{\pi^2}{4p^2+9\pi^2}\left[a=\frac{3\pi}{2}\right], = \frac{2\pi^2}{4p^2+\pi^2} - \frac{2\pi^2}{4p^2+9\pi^2} + \ldots - \frac{2\pi^2\,Cos\,b\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{\pi^2\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}\left[a=\frac{2b+1}{2}\pi\right], = \frac{2\pi^2}{4p^2+\pi^2} - \frac{2\pi^2}{4p^2+9\pi^2} + \ldots + \frac{2\pi^2\,Cos\,b\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\,c<\pi\right]$ (VIII, 377).

17) $\int_0^a Sin\{(2k+1)x\}.Tang\,x\,\frac{dx}{p^2+x^2} = 0\left[a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 377).

18) $\int_0^a \frac{Cos\,2kx}{Cos\,x}\,\frac{dx}{p^2+x^2} = 0\left[a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 377).

19) $\int_0^a Sin\{[1\pm(4k+1)]x\}.Tg\,x\,\frac{dx}{p^2+x^2} = \frac{2\pi}{4p^2+\pi^2}\left[a=\frac{1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \frac{4\pi}{4p^2+\pi^2} + \frac{2\pi}{4p^2+9\pi^2}\left[a=\frac{3\pi}{2}\right], = \frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi}{4p^2+(2b-1)^2\pi^2} +$
$+ \frac{2\pi}{4p^2+(2b+1)^2\pi^2}\left[a=\frac{2b+1}{2}\pi\right], = \frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots + \frac{4\pi}{4p^2+(2b+1)^2\pi^2}$
$\left[a=\frac{2b+1}{2}\pi+c,\,c<\pi\right], = \frac{\pi}{2p}\,\frac{e^p-e^{-p}}{e^p+e^{-p}}\,[a=\infty]$ (VIII, 377).

20) $\int_0^a \frac{Cos\{(4k\pm1)x\}}{Cos\,x}\,\frac{dx}{p^2+x^2} = \frac{\pm2\pi}{4p^2+\pi^2}\left[a=\frac{1}{2}\pi\right], = \frac{\pm4\pi}{4p^2+\pi^2}\left[\frac{1}{2}\pi<a<\frac{3\pi}{2}\right], =$
$= \pm\frac{4\pi}{4p^2+\pi^2} \pm \frac{2\pi}{4p^2+9\pi^2}\left[a=\frac{3\pi}{2}\right], = \pm\left\{\frac{4\pi}{4p^2+\pi^2} + \frac{4\pi}{4p^2+9\pi^2} + \ldots +\right.$

$$+\frac{4\pi}{4p^2+(2b-1)^2\pi^2}+\frac{2\pi}{4p^2+(2b+1)^2\pi^2}\Big\}\left[a=\frac{2b+1}{2}\pi\right],=\pm\Big\{\frac{4\pi}{4p^2+\pi^2}+$$

$$+\frac{4\pi}{4p^2+9\pi^2}+\dots+\frac{4\pi}{4p^2+(2b+1)^2\pi^2}\Big\}\left[a=\frac{2b+1}{2}\pi+c,\ c<\pi\right],=$$

$$=\frac{\pi}{2p}\frac{e^p-e^{-p}}{e^p+e^{-p}}[a=\infty] \text{ (VIII, 377).}$$

21) $\int_0^a \frac{Cos\,kx}{Sin\,x}\frac{x}{p^2+x^2}dx=0\left[a<\frac{1}{2}\pi\right],=\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 378).

22) $\int_0^a Sin\,kx\frac{dx}{(p^2+x^2)^r}=0=$ 23) $\int Cos\,kx\frac{dx}{(p^2+x^2)^r}[0<a<\infty]$ (VIII, 378).

F. Alg. rat. ent.; Circ. Inv. de x. TABLE 229. Lim. 0 et 1.

1) $\int x^{2a} Arcsin\,x\,dx=\frac{1}{2a+1}\left\{\frac{\pi}{2}-\frac{2^{a/2}}{1^{a+1/2}}\right\}$ (VIII, 466).

2) $\int x^{2a-1} Arcsin\,x\,dx=\frac{\pi}{4a}\left\{1-\frac{1^{a/2}}{2^{a/2}}\right\}$ (VIII, 466).

3) $\int(1-x^2)^{a-1}x\,Arcsin\,x\,dx=\frac{\pi}{2^{a+2}a}\frac{1^{a/2}}{1^{a/1}}$ V. T. 8, N. 13.

4) $\int x^{2a} Arccos\,x\,dx=\frac{1}{2a+1}\frac{2^{a/2}}{3^{a/2}}$ V. T. 229, N. 1.

5) $\int x^{2a-1} Arccos\,x\,dx=\frac{\pi}{4a}\frac{1^{a/2}}{2^{a/2}}$ V. T. 229, N. 2.

6) $\int x\,Arctg\,x\,dx=\frac{\pi}{4}-\frac{1}{2}$ V. T. 229, N. 7.

7) $\int x^{p-1} Arctg\,x\,dx=\frac{1}{4p}\left\{\pi+Z'\left(\frac{p+1}{4}\right)-Z'\left(\frac{p+3}{4}\right)\right\}$ V. T. 2, N. 1.

8) $\int x^{p-1} Arccot\,x\,dx=\frac{1}{4p}\left\{\pi+Z'\left(\frac{p+3}{4}\right)-Z'\left(\frac{p+1}{4}\right)\right\}$ V. T. 2, N. 1.

9) $\int x^2(Arctg\,x)^2dx=\frac{1}{3}\left\{-\frac{\pi}{4}l2-\frac{\pi}{2}+\frac{1}{16}\pi^2+1+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}\right\}$ V. T. 231, N. 21.

F. Alg. rat. fract. à dén. monôme; Circ. Inv. de x.	TABLE 230.	Lim. 0 et 1.

1) $\int Arcsin\, x \frac{dx}{x} = \frac{1}{2}\pi\, l\, 2$ (VIII, 594).

2) $\int (Arcsin\, x)^p \frac{dx}{x} = \left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7.

3) $\int Arctg\, x \frac{dx}{x} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 108, N. 10.

4) $\int Arctg\, x \frac{dx}{x^2} = \infty$ V. T. 78, N. 2.

5) $\int Arctg\, x \frac{x^p - x^{-p}}{x} dx = \frac{\pi}{2p}\left(1 - Sec \frac{1}{2} p\pi\right)$ V. T. 4, N. 7.

6) $\int Arccot\, x \frac{x^p - x^{-p}}{x} dx = \frac{\pi}{2p}\left\{1 + Sec \frac{1}{2} p\pi\right\}$ V. T. 4, N. 7.

7) $\int Arctg\, qx \,.\, Arcsin\, x \frac{dx}{x^2} = \frac{1}{2} q\pi\, l \frac{1+\sqrt{1+q^2}}{\sqrt{1+q^2}} + \frac{\pi}{2}\, l\left\{q + \sqrt{1+q^2}\right\} - \frac{\pi}{2} Arctg\, q$

V. T. 235, N. 10 et T. 244, N. 11.

8) $\int (Arcsin\, x)^2 \frac{dx}{x^2} = -\frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 243, N. 10.

9) $\int (Arcsin\, x)^p \frac{dx}{x^2} = p\left(\frac{\pi}{2}\right)^{p-1} \left[1 + \sum_1^\infty \left\{\frac{1}{4^{m-1}} \frac{2^{2m-1}-1}{p+2m-1} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}\right] - \left(\frac{\pi}{2}\right)^p$ V. T. 243, N. 14.

10) $\int (Arcsin\, x)^3 \frac{dx}{x^3} = \frac{3}{2}\pi\, l\, 2 - \frac{1}{16}\pi^3$ V. T. 243, N. 13.

11) $\int (Arctg\, x)^2 \frac{dx}{x^2} = -\frac{1}{16}\pi^2 + \frac{1}{4}\pi\, l\, 2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 12.

12) $\int (Arctg\, x)^p \frac{dx}{x^2} = -\left(\frac{\pi}{4}\right)^p + \frac{p}{2^{2p-1}}\pi^{p-1}\left\{2 - \sum_1^\infty \frac{4}{n+2m-1} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 235, N. 13.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à un fact. mon.	TABLE 231.	Lim. 0 et 1.

1) $\int Arcsin\, x \frac{x}{1+qx^2} dx = \frac{\pi}{2q}\, l \frac{2\sqrt{1+q}}{1+\sqrt{1+q}}\, [q > 0]$ (VIII, 594).

2) $\int Arcsin\, x \frac{x}{1-x^2} dx = \infty$ (VIII, 467).

3) $\int Arcsin\, x \frac{x}{1-p^2x^2} dx = \frac{1}{2p^2}(Arcsin\, p)^2 - \frac{\pi}{4p^2}\, l(1-p^2)$ (VIII, 466*).

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4) $\int Arcsin\, x \frac{x\,dx}{p^2 - x^2} = \frac{1}{2}(Arccosec\, p)^2 - \frac{\pi}{4} l \frac{p^2-1}{p^2}$ (VIII, 466*).

5) $\int Arcsin\, x \frac{x}{1-p^2x^4}\,dx = \frac{\pi}{2p} l \frac{\sqrt{1+p}+\sqrt{1-p^2}}{\sqrt{1-p}+\sqrt{1-p^2}}$ V. T. 122, N. 12.

6) $\int Arcsin\, x \frac{x^3}{1-q^2x^4}\,dx = \frac{\pi}{4q^2} l \frac{1+\sqrt{1+q}+\sqrt{1-q}+\sqrt{1-q^2}}{4\sqrt{1-q^2}}$ V. T. 120, N. 16.

7) $\int Arccos\, x \frac{dx}{1+x} = -\frac{1}{2}\pi l2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 9, 11.

8) $\int Arccos\, x \frac{dx}{1-x} = \frac{1}{2}\pi l2 + 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 9, 11.

9) $\int Arccos\, x \frac{dx}{1-x^2} = 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

10) $\int Arccos\, x \frac{dx}{Sin^2\lambda - x^2} = 2\, Cosec\,\lambda . \sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

11) $\int Arccos\, x \frac{x}{1-x^2}\,dx = \frac{1}{2}\pi l2$ V. T. 120, N. 10.

12) $\int Arccos\, x \frac{x}{1+qx^2}\,dx = \frac{\pi}{2q} l \frac{1+\sqrt{1+q}}{2}$ $[q > 0]$ (VIII, 594).

13) $\int Arccos\, x \frac{x}{1-q^2x^4}\,dx = \frac{\pi}{2q} l \frac{1+\sqrt{1+q}}{1+\sqrt{1-q}}$ V. T. 122, N. 12.

14) $\int Arccos\, x \frac{x^3}{1-q^2x^4}\,dx = \frac{\pi}{2q^2} l \frac{1+\sqrt{1+q}+\sqrt{1-q}+\sqrt{1-q^2}}{4}$ V. T. 120, N. 16.

15) $\int Arctg\, x \frac{dx}{1+x} = \frac{1}{8}\pi l2$ V. T. 114, N. 3.

16) $\int Arctg\left(\frac{\sqrt{p}}{x}\right)\frac{dx}{p+x} = \left\{\frac{\pi}{4}+\frac{1}{2}Arctg(\sqrt{p})\right\}. l\frac{1+p}{p}$ (VIII, 597*).

17) $\int Arctg\,(x\sqrt{p})\frac{dx}{1+px} = \frac{1}{2p} Arctg(\sqrt{p}).l(1+p)$ (VIII, 597*).

18) $\int Arctg\, x \frac{x}{1+x}\,dx = -\frac{\pi}{8} l2 + \frac{\pi}{4} - \frac{1}{2} l2$ V. T. 76, N. 3 et T. 231, N. 15.

19) $\int Arctg\, px \frac{dx}{1+p^2x} = \frac{1}{2p^2} Arctg\, p . l(1+p^2)$ (VIII, 597*).

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20) $\int Arctg\, x \frac{x}{1+x^2}\, dx = \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2} - \frac{1}{8}\pi\, l2$ V. T. 230, N. 3 et T. 235, N. 12.

21) $\int Arctg\, x \frac{x^3}{1+x^2}\, dx = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 229, N. 6 et T. 231, N. 20.

22) $\int Arccot\, x \frac{dx}{1+x} = \frac{3}{8}\pi\, l2$ V. T. 114, N. 3.

23) $\int Arccot\left(\frac{\sqrt{p}}{x}\right) \frac{dx}{p+x} = \frac{1}{2} Arccot(\sqrt{p}) . l \frac{1+p}{p}$ (VIII, 597*).

24) $\int Arccot(x\sqrt{p}) \frac{dx}{1+px} = \frac{1}{p}\left\{\frac{\pi}{4} + \frac{1}{2} Arccot(\sqrt{p})\right\} . l(1+p)$ (VIII, 597*).

25) $\int Arccot\left(\frac{p}{x}\right) \frac{dx}{p^2+x} = \frac{1}{2} Arccot\, p . l \frac{1+p^2}{p^2}$ (VIII, 597*).

26) $\int Arccot\, x \frac{x}{1+x^2}\, dx = \frac{3}{8}\pi\, l2 - \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 9 et T. 253, N. 9.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à un fact. bin. TABLE 232. Lim. 0 et 1.

1) $\int \left(x\, Arccot\, x - \frac{1}{x} Arctg\, x\right) \frac{dx}{1-x^2} = -\frac{1}{4}\pi\, l2$ (VIII, 355).

2) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{dx}{1-x} = -\frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 17.

3) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{dx}{1-x} = \frac{\pi}{4} - \frac{1}{2} l2 - \frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 76, N. 3 et T. 232, N. 2.

4) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{dx}{1-x^2} = \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 17.

5) $\int \left(\frac{\pi}{4} - Arctg\, x\right) \frac{x}{1-x^2}\, dx = -\frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 26.

6) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{dx}{1-x^2} = \frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 15 et T. 232, N. 4.

7) $\int \left(\frac{\pi}{4} - x^3\, Arctg\, x\right) \frac{dx}{1-x^2} = \frac{\pi}{4} - \frac{1}{2} + \frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 229, N. 6 et T. 232, N. 5.

8) $\int \left(\frac{\pi}{4} - x\, Arctg\, x\right) \frac{x\, dx}{1-x^2} = \frac{\pi}{4} - \frac{1}{2} l2 - \frac{\pi}{4} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 18 et T. 232, N. 3.

9) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x}{1+x^2}\,dx=\frac{1}{2}\,l2+\frac{1}{32}\,\pi^2-\frac{\pi}{4}+\frac{\pi}{8}\,l2$ V. T. 76, N. 3.

10) $\int\left(\frac{\pi}{4}-Arctg\,x\right)\frac{x}{1-x^4}\,dx=\frac{\pi}{16}\,l2$ V. T. 115, N. 20.

11) $\int\left(\frac{\pi}{4}-Arctg\,x\right)\frac{x^3}{1-x^4}\,dx=-\frac{3\pi}{16}\,l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 114, N. 29.

12) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi^2}{32}+\frac{\pi}{8}\,l2$ V. T. 231, N. 20 et T. 232, N. 6.

13) $\int\left(\frac{\pi}{4}-x^3\,Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi^2}{32}+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 229, N. 6, T. 231, N. 20 et T. 232, N. 7.

14) $\int\left(\frac{\pi}{4}-x^5\,Arctg\,x\right)\frac{dx}{1-x^4}=\frac{\pi}{8}\,l2+\frac{\pi}{4}-\frac{1}{2}\,l2+\frac{\pi^2}{32}$ V. T. 76, N. 3 et T. 232, N. 12.

15) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x}{1-x^4}\,dx=\frac{1}{64}\,\pi^2-\frac{\pi}{16}\,l2+\frac{1}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 8, 9.

16) $\int\left(\frac{\pi}{4}-x\,Arctg\,x\right)\frac{x^3}{1-x^4}\,dx=\frac{\pi}{4}-\frac{1}{2}\,l2-\frac{1}{64}\,\pi^2-\frac{3\pi}{16}\,l2+\frac{1}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 8, 9.

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x à plus. facteurs. TABLE 233. Lim. 0 et 1.

1) $\int(Arccos\,x)^p\,\frac{dx}{1+x}=\left(\frac{\pi}{2}\right)^p\sum_1^\infty\left\{\frac{2^{2m}-1}{4^{m-1}}\,\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7 et T. 206, N. 3.

2) $\int(Arccos\,x)^p\,\frac{dx}{1-x}=\left(\frac{\pi}{2}\right)^p\left\{2-\sum_1^\infty\left(\frac{1}{4^{m-1}}\,\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 205, N. 7 et T. 206, N. 3.

3) $\int(Arccos\,x)^b\,\frac{dx}{x\pm q}=-2\,Cos\frac{1}{2}b\pi.1^{b/1}\sum_1^\infty\frac{(\mp c)^n}{n^{b+1}}-2\sum_1^\infty\left\{c^{2n}\sum_0^\infty\binom{b}{2m}(-1)^m\left(\frac{\pi}{2}\right)^{b-2m}\frac{1}{(2n)^{2m+1}}+\right.$

$\left.+c^{2n-1}\sum_0^\infty\binom{b}{2m+1}(-1)^m\left(\frac{\pi}{2}\right)^{b-2m-1}\frac{1}{(2n+1)^{2m+2}}\right\}$ [où $c=q-\sqrt{q^2-1}$]

V. T. 207, N. 7.

4) $\int(Arccos\,x)^p\,\frac{dx}{1-x^2}=\left(\frac{\pi}{2}\right)^p\left\{1+\sum_1^\infty\left(\frac{1}{4^{m-1}}\,\frac{2^{2m-1}-1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 206, N. 3.

5) $\int(Arccos\,x)^p\,\frac{x}{1-x^2}\,dx=\left(\frac{\pi}{2}\right)^p\left\{1-2\sum_1^\infty\left(\frac{1}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right)\right\}$ V. T. 205, N. 7.

1) $\int Arcsin\, x \frac{dx}{(x+p)^2} = \frac{-\pi}{2(1+p)} + \frac{1}{\sqrt{1-p^2}}\, l\frac{1+\sqrt{1-p^2}}{p}\ [p^2<1], = \frac{-\pi}{2(1+p)} +$

$+ \frac{1}{\sqrt{p^2-1}}\, Arcsin \frac{\sqrt{p^2-1}}{p}\ [p^2>1]$ (VIII, 593).

2) $\int Arcsin\, x \frac{x}{(1+qx^2)^2}\, dx = \frac{\pi}{4q}\, \frac{\sqrt{1+q}-1}{1+q}$ (VIII, 593).

3) $\int Arccos\, x \frac{dx}{(x+p)^2} = \frac{\pi}{2p} + \frac{1}{\sqrt{1-p^2}}\, l\frac{p}{1+\sqrt{1-p^2}}\ [p^2<1], = \frac{\pi}{2p} - \frac{1}{\sqrt{p^2-1}}$

$Arcsin \frac{\sqrt{p^2-1}}{p}\ [p^2>1]$ (VIII, 593).

4) $\int Arccos\, x \frac{x}{(1+qx^2)^2}\, dx = \frac{\pi}{4q}\, \frac{\sqrt{1+q}-1}{\sqrt{1+q}}$ (VIII, 593).

5) $\int Arccos\, x \frac{x^{2p-1}}{(1-x^2)^{p+1}}\, dx = \frac{\pi}{4p}\, Sec\, p\pi \left[p<\frac{1}{2}\right]$ V. T. 8, N. 12.

6) $\int (Arccos\, x)^3 \frac{x}{(1-x^2)^2}\, dx = \frac{3}{2}\pi\, l2 - \frac{1}{16}\pi^3$ V. T. 244, N. 9.

7) $\int Arctg\, qx \frac{dx}{(1+px)^2} = \frac{1}{2}\, \frac{q}{p^2+q^2}\, l\frac{(1+p)^2}{1+q^2} + \frac{q^2-p}{(1+p)(p^2+q^2)}\, Arctg\, q$ (VIII, 597*).

8) $\int Arctg\, x \frac{2+x}{(1+x)^2}\, x\, dx = \frac{1}{4}\pi - \frac{3}{4}\, l2$ V. T. 2, N. 11.

9) $\int Arctg\, x \frac{2p-1-(2p-3)x^2}{(1+x^2)^{2p-1}}\, x^{2p-2}\, dx = \frac{\pi}{2^{2p}} - \frac{\{\Gamma(p)\}^2}{4\Gamma(2p)}$ V. T. 4, N. 16.

10) $\int Arccot\, qx \frac{dx}{(1+px)^2} = \frac{1}{2}\, \frac{q}{p^2+q^2}\, l\frac{1+q^2}{(1+p)^2} + \frac{p}{p^2+q^2}\, Arctg\, q + \frac{1}{1+p} Arccot\, q$ (VIII, 597).

11) $\int Arccot\, x \frac{2+x}{(1+x)^2}\, x\, dx = \frac{3}{4}\, l2$ V. T. 2, N. 11.

12) $\int Arccot\, x \frac{x}{(1+x^2)^2}\, dx = \frac{1}{16}\left\{\pi + 2 + Z'\left(\frac{3}{4}\right) - Z'\left(\frac{5}{4}\right)\right\}$ V. T. 3, N. 11.

1) $\int Arcsin\,x \frac{x}{Cos^2\lambda + x^2 Sin^2\lambda} \frac{dx}{Cos^2\mu + x^2 Sin^2\mu} = \frac{\pi}{Sin(\lambda-\mu).Sin(\lambda+\mu)} l\left(Cos\frac{1}{2}\mu . Sec\frac{1}{2}\lambda\right)$ V. T. 122, N. 11.

2) $\int Arcsin\,x \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{1-x^2 Sin^2\mu} = \frac{\pi}{Sin^2\lambda - Sin^2\mu} l\frac{Cos\frac{1}{2}\lambda . \sqrt{Cos\mu}}{Cos\frac{1}{2}\mu . \sqrt{Cos\lambda}}$ V. T. 122, N. 11.

3) $\int Arccos\,x \frac{x}{Cos^2\lambda + x^2 Sin^2\lambda} \frac{dx}{Cos^2\mu + x^2 Sin^2\mu} = \frac{1}{2} \frac{\pi}{Sin(\lambda+\mu).Sin(\lambda-\mu)} l\frac{1+Sec\lambda}{1+Sec\mu}$ V. T. 122, N. 11.

4) $\int Arccos\,x \frac{x}{1-x^2 Sin^2\lambda} \frac{dx}{1-x^2 Sin^2\mu} = \frac{\pi}{Sin^2\lambda - Sin^2\mu} l\frac{Cos\frac{1}{2}\mu}{Cos\frac{1}{2}\lambda}$ V. T. 122, N. 11.

5) $\int Arctg\,px \frac{3-p^2+(1-3p^2)p^2x^2}{(1-p^4x^2)(1-p^4x^4)} dx = \frac{1}{2p} Arctg\,p . l\frac{1+p^2}{1-p^2}$ $[p^2<1]$ (VIII, 597*).

6) $\int Arctg\frac{x}{p} \frac{(3p^2-1)p^2-(p^2-3)x^2}{(p^4-x^2)(p^4-x^4)} dx = \frac{1}{2p^2} Arccot\,p . l\frac{p^2+1}{p^2-1}$ $[p^2>1]$ (VIII, 598*).

7) $\int Arccot\,px \frac{3-p^2+(1-3p^2)p^2x^2}{(1-p^4x^2)(1-p^4x^4)} dx = \frac{\pi}{4p} l(1+p^2) + \frac{1}{2p} Arccot\,p . l\frac{1+p^2}{1-p^2}$ $[p^2<1]$ (VIII, 597*).

8) $\int Arccot\frac{x}{p} \frac{(3p^2-1)p^2-(p^2-3)x^2}{(p^4-x^2)(p^4-x^4)} dx = \frac{\pi}{2p^2} l\frac{1+p^2}{p^2} + \frac{1}{2p^2} Arctg\,p . l\frac{p^2+1}{p^2-1}$ $[p^2>1]$ (VIII, 598*).

9) $\int Arcsin\,x \frac{dx}{x(1-x^2)} = \infty$ (IV, 353).

10) $\int Arcsin\,x \frac{dx}{x(1+qx^2)} = \frac{\pi}{2} l\frac{1+\sqrt{1+q}}{\sqrt{1+q}}$ V. T. 230, N. 1 et T. 231, N. 1.

11) $\int Arctg\,x \frac{dx}{x(1+x)} = -\frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 3.

12) $\int Arctg\,x \frac{dx}{x(1+x^2)} = \frac{\pi}{8} l2 + \frac{1}{2} \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

13) $\int (Arctg\,x)^p \frac{dx}{x(1+x^2)} = \frac{\pi^p}{2^{2p}} \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$ V. T. 204, N. 6.

14) $\int Arcsin\,x \frac{x}{\frac{1}{2}(p+1)-x^2} dx = -\frac{\pi}{4} l\{2(1-p)\}$ $[p^2<1]$, $= \frac{\pi}{4} l\frac{p+\sqrt{p^2-1}}{2(p-1)}$ $[p^2>1]$ V. T. 219, N. 4.

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15) $\int Arcsin\,x \frac{x}{(1-p)^2+4px^2}\,dx = \frac{\pi}{8p} l(1+p)\,[p^2<1], = \frac{\pi}{8p} l\frac{1+p}{p}\,[p^2>1]$ V. T. 221, N. 2.

16) $\int Arcsin\,x \frac{dx}{1+2px+p^2} = \frac{1}{2p}\left\{\pi l(1+p) - \sum_0^\infty \frac{1}{2n+1}\,\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}\right\}$ V. T. 121, N. 1.

17) $\int Arccos\,x \frac{x}{(1+p)^2-4px^2}\,dx = \frac{\pi}{8p} l(1+p)\,[p^2<1], = \frac{\pi}{8p} l\frac{1+p}{p}\,[p^2>1]$ V. T. 219, N. 2.

18) $\int Arccos\,x \frac{x}{\frac{1}{2}(1+p)-x^2}\,dx = \frac{\pi}{4} l\{2(1+p)\}\,[p^2<1], = \frac{\pi}{4} l\frac{2(1+p)}{p+\sqrt{p^2-1}}\,[p^2>1]$

V. T. 219, N. 4.

19) $\int Arccos\,x \frac{dx}{1+2px+p^2} = \frac{1}{2p}\left\{-\frac{\pi}{2} l(1+p^2) + \sum_0^\infty \frac{1}{2n+1}\,\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}\right\}$ V. T. 121, N. 1.

20) $\int Arctg\,x \frac{1-2x-x^2}{1+x}\,\frac{dx}{1+x^2} = \frac{3\pi}{8} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 115, N. 18.

21) $\int Arctg\,x \frac{1-x}{1+x}\,\frac{dx}{1+x^2} = \frac{\pi}{4} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 231, N. 20 et T. 235, N. 20.

22) $\int Arctg\,x \frac{1-x^3}{x(1+x)}\,\frac{dx}{1+x^2} = \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 231, N. 20 et T. 235, N. 11, 20.

23) $\int Arctg\,x \frac{1+2x-x^2}{x(1+x)}\,\frac{dx}{1+x^2} = \frac{3\pi}{8} l2$ V. T. 230, N. 3 et T. 235, N. 20.

24) $\int \left(\frac{\pi}{4} - Arctg\,x\right) \frac{1+2x-x^2}{1-x}\,\frac{dx}{1+x^2} = \frac{3\pi}{8} l2$ V. T. 115, N. 19.

25) $\int \left(\frac{\pi}{4} - Arctg\,x\right) \frac{1+x}{1-x}\,\frac{dx}{1+x^2} = \frac{\pi}{8} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 232, N. 2 et T. 235, N. 24.

F. Alg. irrat. ent.; Circ. Inv. de x. TABLE 236. Lim. 0 et 1.

1) $\int Arcsin\,x\,.\,x\,dx\,\sqrt{1-p^2x^2} = \frac{1}{9p^2}\left[-\frac{3}{2}\pi\sqrt{1-p^2}^{\,3} - (1-p^2)F'(p) + 2(2-p^2)E'(p)\right]$

V. T. 209, N. 1.

2) $\int Arcsin\,x\,.\,x^3\,dx\,\sqrt{1-p^2x^2} = \frac{1}{225p^4}\left[-15(2+3p^2)\frac{\pi}{2}\sqrt{1-p^2}^{\,3} - (1+12p^2)(1-p^2)F'(p) + \right.$

$\left. + (31+19p^2-24p^4)E'(p)\right]$ V. T. 209, N. 5.

3) $\int Arcsin\, x\,.\,x^5\,dx\,\sqrt{1-p^2x^2} = \frac{1}{11025p^8}\Big[-105\,(8+12p^2+15p^4)\frac{\pi}{2}\,\sqrt{1-p^2}^{\,3} + $
$+(62-111p^2-360p^4)(1-p^2)\mathrm{F}'(p)+2\,(389+176p^2+204p^4-360p^6)\mathrm{E}'(p)\Big]$

V. T. 209, N. 8.

4) $\int Arcsin\, x\,.\,x^7\,dx\,\sqrt{1-p^2x^2} = \frac{1}{99225p^8}\Big[-315\,(16+24p^2+30p^4+35p^6)\frac{\pi}{2}\,\sqrt{1-p^2}^{\,3} +$
$+(652-141p^2-900p^4-2240p^6)(1-p^2)\mathrm{F}'(p)+(4388+1727p^2+1503p^4+$
$+2120p^6-4480p^8)\mathrm{E}'(p)\Big]$ V. T. 209, N. 10.

5) $\int Arcsin\, x\,.\,x\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{9p^2}\Big[\frac{3\pi}{2}+(1-p^2)\mathrm{F}'(p)-2\,(2-p^2)\mathrm{E}'(p)\Big]$

V. T. 209, N. 11.

6) $\int Arcsin\, x\,.\,x^3\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{225p^4}\Big[-15\,(2-5p^2)\frac{\pi}{2}-(1-13p^2)(1-p^2)\mathrm{F}'(p)+$
$+(31-81p^2+26p^4)\mathrm{E}'(p)\Big]$ V. T. 209, N. 15.

7) $\int Arcsin\, x\,.\,x^5\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{11025p^6}\Big[105\,(8-28p^2+35p^4)\frac{\pi}{2}-(62-13p^2-$
$-409p^4)(1-p^2)\mathrm{F}'(p)-2\,(389-1343p^2+1723p^4-409p^6)\mathrm{E}'(p)\Big]$ V. T. 209, N. 18.

8) $\int Arcsin\, x\,.\,x^7\,dx\,\sqrt{1-p^2+p^2x^2} = \frac{1}{99225p^8}\Big[-315\,(16-72p^2+126p^4-105p^6)\frac{\pi}{2}+$
$+(652-1815p^2+774p^4+2629p^6)(1-p^2)\mathrm{F}'(p)+(4388-19279p^2+33012p^4-$
$-27859p^6+5258p^8)\mathrm{E}'(p)\Big]$ V. T. 209, N. 20.

9) $\int Arccos\, x\,.\,x\,dx\,\sqrt{1-p^2x^2} = \frac{1}{9p^2}\Big[\frac{3\pi}{2}+(1-p^2)\mathrm{F}'(p)-2\,(2-p^2)\mathrm{E}'(p)\Big]$ V. T. 209, N. 11.

10) $\int Arccos\, x\,.\,x^3\,dx\,\sqrt{1-p^2x^2} = \frac{1}{225p^4}\Big[15\pi+(1+12p^2)(1-p^2)\mathrm{F}'(p)-$
$-(31+19p^2-24p^4)\mathrm{E}'(p)\Big]$ V. T. 209, N. 12.

11) $\int Arccos\, x\,.\,x^5\,dx\,\sqrt{1-p^2x^2} = \frac{1}{11025p^6}\big[420\pi-(62-111p^2-360p^4)(1-p^2)\mathrm{F}'(p)-$
$-2\,(389+176p^2+204p^4-360p^6)\mathrm{E}'(p)\big]$ V. T. 209, N. 13.

12) $\int Arccos\,x\,.\,x^7\,dx\sqrt{1-p^2x^2} = \frac{1}{99225p^8}[280\pi - (652-141p^2-900p^4-2240p^6)(1-p^2)$
$F'(p) - (4388+1727p^2+1503p^4+2120p^6-4480p^8)E'(p)]$ V. T. 209, N. 14.

13) $\int Arccos\,x\,.\,x\,dx\sqrt{1-p^2+p^2x^2} = \frac{1}{9p^2}\left[-\frac{3\pi}{2}\sqrt{1-p^2}^3 - (1-p^2)F'(p) + 2(2-p^2)E'(p)\right]$
V. T. 209, N. 1.

14) $\int Arccos\,x\,.\,x^3\,dx\sqrt{1-p^2+p^2x^2} = \frac{1}{225p^4}[15\pi\sqrt{1-p^2}^5 + (1-13p^2)(1-p^2)F'(p) -$
$-(31-81p^2+26p^4)E'(p)]$ V. T. 209, N. 2.

15) $\int Arccos\,x\,.\,x^5\,dx\sqrt{1-p^2+p^2x^2} = \frac{1}{11025p^6}[-420\pi\sqrt{1-p^2}^7 + (62-13p^2-409p^4)$
$(1-p^2)F'(p) + 2(389-1343p^2+1723p^4-409p^6)E'(p)]$ V. T. 209, N. 3.

16) $\int Arccos\,x\,.\,x^7\,dx\sqrt{1-p^2+p^2x^2} = \frac{1}{99225p^8}[2520\pi\sqrt{1-p^2}^9 - (652-1815p^2+774p^4+$
$+2629p^6)(1-p^2)F'(p) - (4388-19279p^2+33012p^4-27859p^6+5258p^8)E'(p)]$
V. T. 209, N. 4.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2x^2}$; Circ. Inv. *Arcsin* x. TABLE 237. Lim. 0 et 1.

1) $\int Arcsin\,x\,\frac{x\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2}\left[-\frac{\pi}{2}\sqrt{1-p^2} + E'(p)\right]$ V. T. 211, N. 1.

2) $\int Arcsin\,x\,\frac{x^3\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{9p^4}\left[-3(2+p^2)\frac{\pi}{2}\sqrt{1-p^2} + (1-p^2)F'(p) + (5+2p^2)E'(p)\right]$
V. T. 211, N. 5.

3) $\int Arcsin\,x\,\frac{x^5\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{225p^6}\left[-15(8+4p^2+3p^4)\frac{\pi}{2}\sqrt{1-p^2} + 2(13+6p^2)(1-p^2)\right.$
$\left.F'(p) + (94+31p^2+24p^4)E'(p)\right]$ V. T. 211, N. 8.

4) $\int Arcsin\,x\,\frac{x^7\,dx}{\sqrt{1-p^2x^2}} = \frac{1}{3675p^8}\left[-105(16+8p^2+6p^4+5p^6)\frac{\pi}{2}\sqrt{1-p^2} + (404+233p^2+\right.$
$\left.+120p^4)(1-p^2)F'(p) + (1276+389p^2+256p^4+240p^6)E'(p)\right]$ V. T. 211, N. 10.

5) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2x^2}^3} = \frac{\pi}{2\sqrt{1-p^2}} - \frac{1}{2p} l \frac{1+p}{1-p}$ V. T. 211, N. 26.

6) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^2}\left[\frac{\pi}{2\sqrt{1-p^2}} - \mathrm{F}'(p)\right]$ V. T. 211, N. 14.

7) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{p^4}\left[(2-p^2)\frac{\pi}{2\sqrt{1-p^2}} - \mathrm{F}'(p) - \mathrm{E}'(p)\right]$ V. T. 211, N. 18.

8) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{9p^6}\left[3(8-4p^2-p^4)\frac{\pi}{2\sqrt{1-p^2}} - (10-p^2)\mathrm{F}'(p) - 2(7+p^2)\mathrm{E}'(p)\right]$ V. T. 211, N. 21.

9) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{75p^8}\left[15(16-8p^2-2p^4-p^6)\frac{\pi}{2\sqrt{1-p^2}} - (92-13p^2-4p^4)\mathrm{F}'(p) - (148+27p^2+8p^4)\mathrm{E}'(p)\right]$ V. T. 211, N. 23.

10) $\int Arcsin\, x \frac{dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3(1-p^2)}\left[(3-2p^2)\frac{\pi}{2\sqrt{1-p^2}} - 1 - \frac{1-p^2}{p} l \frac{1+p}{1-p}\right]$ V. T. 212, N. 17.

11) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - \mathrm{E}'(p)\right]$ V. T. 212, N. 2.

12) $\int Arcsin\, x \frac{x^2\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{6p^2(1-p^2)}\left[\frac{p^2\pi}{\sqrt{1-p^2}} - 2 + \frac{1-p^2}{p} l \frac{1+p}{1-p}\right]$ V. T. 212, N. 7.

13) $\int Arcsin\, x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^4(1-p^2)}\left[-(2-3p^2)\frac{\pi}{2\sqrt{1-p^2}} + 3(1-p^2)\mathrm{F}'(p) - \mathrm{E}'(p)\right]$ V. T. 212, N. 9.

14) $\int Arcsin\, x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^6(1-p^2)}\left[-(8-12p^2+3p^4)\frac{\pi}{2\sqrt{1-p^2}} + 6(1-p^2)\mathrm{F}'(p) + (2-3p^2)\mathrm{E}'(p)\right]$ V. T. 212, N. 12.

15) $\int Arcsin\, x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{9p^8(1-p^2)}\left[-3(16-24p^2+6p^4+p^6)\frac{\pi}{2\sqrt{1-p^2}} + (28-p^2)(1-p^2)\mathrm{F}'(p) + (20-21p^2-2p^4)\mathrm{E}'(p)\right]$ V. T. 212, N. 14.

16) $\int Arcsin\, x . x\,dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right]$ V. T. 212, N. 3.

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17) $$\int Arcsin\,x \frac{dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15(1-p^2)^2}\left[(15-20p^2+8p^4)\frac{\pi}{2\sqrt{1-p^2}}-(7-5p^2)-\right.$$
$$\left.-4\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 20.

18) $$\int Arcsin\,x \frac{x\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[\frac{3\pi}{2\sqrt{1-p^2}}+(1-p^2)\mathrm{F}'(p)-2(2-p^2)\mathrm{E}'(p)\right]$$ V. T. 213, N. 2.

19) $$\int Arcsin\,x \frac{x^2\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[(5-2p^2)\frac{p^2\pi}{2\sqrt{1-p^2}}-2+\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 8.

20) $$\int Arcsin\,x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^4(1-p^2)^2}\left[-(2-5p^2)\frac{\pi}{\sqrt{1-p^2}}+(1-p^2)\mathrm{F}'(p)+\right.$$
$$\left.+(1-3p^2)\mathrm{E}'(p)\right]$$ V. T. 213, N. 11.

21) $$\int Arcsin\,x \frac{x^4\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{30p^4(1-p^2)^2}\left[\frac{3p^4\pi}{\sqrt{1-p^2}}+2(3-5p^2)-3\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 15.

22) $$\int Arcsin\,x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^6(1-p^2)^2}\left[(8-20p^2+15p^4)\frac{\pi}{2\sqrt{1-p^2}}-(14-15p^2)\right.$$
$$\left.(1-p^2)\mathrm{F}'(p)+2(3-4p^2)\mathrm{E}'(p)\right]$$ V. T. 213, N. 17.

23) $$\int Arcsin\,x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^8(1-p^2)^2}\left[3(16-40p^2+30p^4-5p^6)\frac{\pi}{2\sqrt{1-p^2}}-\right.$$
$$\left.-(44-45p^2)(1-p^2)\mathrm{F}'(p)-(4-17p^2+15p^4)\mathrm{E}'(p)\right]$$ V. T. 213, N. 19.

24) $$\int Arcsin\,x\,.\,x\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^3-\frac{1-3p^2}{p}Arcsin\,p\right]$$ V. T. 213, N. 3.

25) $$\int Arcsin\,x\,.\,x^3\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)^2}\left[-(3-11p^2)\sqrt{1-p^2}^3+(3-5p^2)\right.$$
$$\left.(1-3p^2)\frac{1}{p}Arcsin\,p\right]$$ V. T. 213, N. 12.

26) $$\int Arcsin\,x\,.\,x\,dx\sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2}-\right.$$
$$\left.-\frac{3}{p}(1-3p^2)Arcsin\,p\right]$$ V. T. 213, N. 5.

1) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}} = \dfrac{1}{p^2}\left[\dfrac{\pi}{2} - \mathrm{E}'(p)\right]$ V. T. 214, N. 1.

2) $\int Arcsin\, x \dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}} = \dfrac{1}{9p^4}\left[-3(2-3p^2)\dfrac{\pi}{2} + (1-p^2)\mathrm{F}'(p) + (5-7p^2)\mathrm{E}'(p)\right]$
V. T. 214, N. 5.

3) $\int Arcsin\, x \dfrac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}} = \dfrac{1}{225p^6}\left[15(8-20p^2+15p^4)\dfrac{\pi}{2} - 2(13-19p^2)(1-p^2)\mathrm{F}'(p) - \right.$
$\left. -(94-219p^2+149p^4)\mathrm{E}'(p)\right]$ V. T. 214, N. 8.

4) $\int Arcsin\, x \dfrac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}} = \dfrac{1}{3675p^8}\left[-105(16-56p^2+70p^4-35p^6)\dfrac{\pi}{2} + \right.$
$\left. + (404-1041p^2+757p^4)(1-p^2)\mathrm{F}'(p) + (1276-4217p^2+4862p^4-2161p^6)\mathrm{E}'(p)\right]$
V. T. 214, N. 10.

5) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \dfrac{1}{p^2}\left[-\dfrac{\pi}{2} + \mathrm{F}'(p)\right]$ (VIII, 593).

6) $\int Arcsin\, x \dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \dfrac{1}{p^4}\left[(2-p^2)\dfrac{\pi}{2} - (1-p^2)\mathrm{F}'(p) - \mathrm{E}'(p)\right]$ V. T. 214, N. 18.

7) $\int Arcsin\, x \dfrac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \dfrac{1}{9p^6}\left[-3(8-12p^2+3p^4)\dfrac{\pi}{2} + (10-9p^2)(1-p^2)\mathrm{F}'(p) + \right.$
$\left. + 2(7-8p^2)\mathrm{E}'(p)\right]$ V. T. 214, N. 21.

8) $\int Arcsin\, x \dfrac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \dfrac{1}{75p^8}\left[15(16-40p^2+30p^4-5p^6)\dfrac{\pi}{2} - (92-171p^2+75p^4)\right.$
$\left. (1-p^2)\mathrm{F}'(p) - (148-323p^2+183p^4)\mathrm{E}'(p)\right]$ V. T. 214, N. 23.

9) $\int Arcsin\, x \dfrac{dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{3(1-p^2)^2}\left[\dfrac{\pi}{2}(3-p^2) - \sqrt{1-p^2} - \dfrac{2}{p} Arcsin\, p\right]$
V. T. 215, N. 17.

10) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{3p^2(1-p^2)}\left[-(1-p^2)\dfrac{\pi}{2} + \mathrm{E}'(p)\right]$ V. T. 215, N. 2.

11) $\int Arcsin\, x \dfrac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{3p^2(1-p^2)}\left[\dfrac{1}{2}p^2\pi + \sqrt{1-p^2} - \dfrac{1}{p} Arcsin\, p\right]$
V. T. 215, N. 7.

12) $\int Arcsin\,x \dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{3p^4}\left[-(2+p^2)\dfrac{\pi}{2}+3\,\mathrm{F}'(p)-\mathrm{E}'(p)\right]$ V. T. 215, N. 9.

13) $\int Arcsin\,x \dfrac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{3p^6}\left[(8-4p^2-p^4)\dfrac{\pi}{2}-6(1-p^2)\,\mathrm{F}'(p)-(2+p^2)\,\mathrm{E}'(p)\right]$
V. T. 215, N. 12.

14) $\int Arcsin\,x \dfrac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \dfrac{1}{9p^8}\left[-3(16-24p^2+6p^4+p^6)\dfrac{\pi}{2}+(28-27p^2)\right.$
$\left.(1-p^2)\,\mathrm{F}'(p)+(20-19p^2-3p^4)\,\mathrm{E}'(p)\right]$ V. T. 215, N. 14.

15) $\int Arcsin\,x\,.\,x\,dx\sqrt{\dfrac{1-x^2}{(1-p^2+p^2x^2)^5}} = \dfrac{1}{6p^2}\left[\dfrac{2}{1-p^2}-\dfrac{1}{p}\,l\,\dfrac{1+p}{1-p}\right]$ V. T. 215, N. 3.

16) $\int Arcsin\,x \dfrac{dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^2(1-p^2)^3}\left[p^2(7-6p^2+3p^4)\dfrac{\pi}{2}-(4+3p^2-2p^4)\right.$
$\left.\sqrt{1-p^2}+4\,\dfrac{1-3p^2}{p}\,Arcsin\,p\right]$ V. T. 216, N. 20.

17) $\int Arcsin\,x \dfrac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^2(1-p^2)^2}\left[3(1-p^2)^2\dfrac{\pi}{2}-(1-p^2)\,\mathrm{F}'(p)+\right.$
$\left.+2(2-p^2)\,\mathrm{E}'(p)\right]$ V. T. 216, N. 2.

18) $\int Arcsin\,x \dfrac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^4(1-p^2)^2}\left[-p^2(2-6p^2+3p^4)\dfrac{\pi}{2}-(1-2p^2)\right.$
$\left.\sqrt{1-p^2}^3+\dfrac{1-3p^2}{p}\,Arcsin\,p\right]$ V. T. 216, N. 8.

19) $\int Arcsin\,x \dfrac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^4(1-p^2)}\left[-(2+3p^2)(1-p^2)\dfrac{\pi}{2}+(1-p^2)\,\mathrm{F}'(p)+\right.$
$\left.+(1+2p^2)\,\mathrm{E}'(p)\right]$ V. T. 216, N. 11.

20) $\int Arcsin\,x \dfrac{x^4\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{30p^6(1-p^2)}\left[-3p^2(7-11p^2+3p^4)\dfrac{\pi}{2}-(3-9p^2-4p^4)\right.$
$\left.\sqrt{1-p^2}+3(1-2p^2)\dfrac{1}{p}\,Arcsin\,p\right]$ V. T. 216, N. 15.

21) $\int Arcsin\,x \dfrac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^6}\left[-(8+4p^2+3p^4)\dfrac{\pi}{2}+(14+p^2)\,\mathrm{F}'(p)-\right.$
$\left.-2(3+p^2)\,\mathrm{E}'(p)\right]$ V. T. 216, N. 17.

22) $\int Arcsin\, x \dfrac{x^7\, dx}{\sqrt{1-p^2+p^2x^2}^7} = \dfrac{1}{15p^8}\left[3(16-8p^2-2p^4-p^6)\dfrac{\pi}{2}-(44+p^2)(1-p^2)F'(p)-\right.$
$\left.-(4+9p^2+2p^4)E'(p)\right]$ V. T. 216, N. 19.

23) $\int Arcsin\, x\,.\,x\,dx \sqrt{\dfrac{1-x^2}{(1-p^2+p^2x^2)^7}} = \dfrac{1}{15p^2}\left[\dfrac{2}{(1-p^2)^2}-\dfrac{1}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 216, N. 3.

24) $\int Arcsin\, x\,.\,x^3\,dx \sqrt{\dfrac{1-x^2}{(1-p^2+p^2x^2)^7}} = \dfrac{1}{30p^6}\left[\dfrac{6}{1-p^2}-\dfrac{3+2p^2}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 216, N. 12.

25) $\int Arcsin\, x\,.\,x\,dx \sqrt{\dfrac{(1-x^2)^3}{(1-p^2+p^2x^2)^7}} = \dfrac{1}{30p^4}\left[-2\dfrac{3-5p^2}{(1-p^2)^2}+\dfrac{3}{p}\, l\dfrac{1+p}{1-p}\right]$ V. T. 216, N. 5.

F. Alg. irrat. fract. à dén. composé; Circ. Inv. *Arcsin x*. TABLE 239. Lim. 0 et 1.

1) $\int Arcsin\, px \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = -\dfrac{\pi}{4p}\, l(1-p^2)$ Bronwin, Math. 2, 297.

2) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \dfrac{1}{p(1-p^2)} Arcsin\, p$ V. T. 211, N. 13.

3) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \dfrac{1}{3(1-p^2)^2}\left[\sqrt{1-p^2}+\dfrac{2}{p} Arcsin\, p\right]$ V. T. 212, N. 1.

4) $\int Arcsin\, x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \dfrac{1}{3p^2(1-p^2)^2}\left[\sqrt{1-p^2}-\dfrac{1-3p^2}{p} Arcsin\, p\right]$
V. T. 212, N. 8.

5) $\int Arcsin\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{15p^2(1-p^2)^3}\left[(4+3p^2-2p^4)\sqrt{1-p^2}-\right.$
$\left.-4\dfrac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 213, N. 1.

6) $\int Arcsin\, x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{15p^4(1-p^2)^3}\left[-(1-8p^2+2p^4)\sqrt{1-p^2}+\right.$
$\left.+(1-5p^2)(1-3p^2)\dfrac{1}{p} Arcsin\, p\right]$ V. T. 213, N. 10.

7) $\int Arcsin\, x \dfrac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{30p^6(1-p^2)^3}\left[(3-19p^2+41p^4-15p^6)\sqrt{1-p^2}+\right.$
$\left.+(3-10p^2+15p^4)(1-3p^2)\dfrac{1}{p} Arcsin\, p\right]$ V. T. 213, N. 16.

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F. Alg. irrat. fract. à dén. composé; Circ. Inv. *Arcsin x*. — TABLE 239, suite. — Lim. 0 et 1.

8) $\int Arcsin\,x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^3}} = \dfrac{1}{2p}\, l\,\dfrac{1+p}{1-p}$ V. T. 214, N. 13.

9) $\int Arcsin\,x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \dfrac{1}{3}\left[\dfrac{1}{1-p^2}+\dfrac{1}{p}\, l\,\dfrac{1+p}{1-p}\right]$ V. T. 215, N. 1.

10) $\int Arcsin\,x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \dfrac{1}{6p^2}\left[-2+\dfrac{1+2p^2}{p}\, l\,\dfrac{1+p}{1-p}\right]$ V. T. 215, N. 8.

11) $\int Arcsin\,x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \dfrac{1}{15}\left[\dfrac{7-5p^2}{(1-p^2)^2}+\dfrac{4}{p}\, l\,\dfrac{1+p}{1-p}\right]$ V. T. 216, N. 1.

12) $\int Arcsin\,x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \dfrac{1}{15p^2}\left[-\dfrac{2-5p^2}{1-p^2}+\dfrac{1+4p^2}{p}\, l\,\dfrac{1+p}{1-p}\right]$
V. T. 216, N. 10.

13) $\int Arcsin\,x \dfrac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \dfrac{1}{30p^4}\left[-2(3+5p^2)+(3+4p^2+8p^4)\dfrac{1}{p}\, l\,\dfrac{1+p}{1-p}\right]$
V. T. 216, N. 16.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2x^2}$; Circ. Inv. *Arccos x*. — TABLE 240. — Lim. 0 et 1.

1) $\int Arccos\,x \dfrac{x\,dx}{\sqrt{1-p^2x^2}} = \dfrac{1}{p}\left[\dfrac{\pi}{2}-E'(p)\right]$ V. T. 214, N. 1.

2) $\int Arccos\,x \dfrac{x^3\,dx}{\sqrt{1-p^2x^2}} = \dfrac{1}{9p^4}\left[3\pi-(1-p^2)F'(p)-(5+2p^2)E'(p)\right]$ V. T. 214, N. 2.

3) $\int Arccos\,x \dfrac{x^5\,dx}{\sqrt{1-p^2x^2}} = \dfrac{1}{225p^6}\left[60\pi-2(13+6p^2)(1-p^2)F'(p)-(94+31p^2+24p^4)E'(p)\right]$
V. T. 214, N. 3.

4) $\int Arccos\,x \dfrac{x^7\,dx}{\sqrt{1-p^2x^2}} = \dfrac{1}{3675p^8}\left[840\pi-(414+233p^2+120p^4)(1-p^2)F'(p)-\right.$
$\left.-(1276+389p^2+256p^4+240p^6)E'(p)\right]$ V. T. 214, N. 4.

5) $\int Arccos\,x \dfrac{dx}{\sqrt{1-p^2x^2}^{\,3}} = \dfrac{1}{2p}\, l\,\dfrac{1+p}{1-p}$ V. T. 214, N. 13.

6) $\int Arccos\,x \dfrac{x\,dx}{\sqrt{1-p^2x^2}^{\,3}} = \dfrac{1}{p^2}\left[-\dfrac{\pi}{2}+F'(p)\right]$ V. T. 214, N. 14.

7) $\int Arccos\,x \dfrac{x^3\,dx}{\sqrt{1-p^2x^2}^{\,3}} = \dfrac{1}{p^4}\left[-\pi+F'(p)+E'(p)\right]$ V. T. 214, N. 15.

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8) $\int Arccos\,x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{9p^6}\left[-12\pi-(10-p^2)F'(p)+2(7+p^2)E'(p)\right]$ V. T. 214, N. 16.

9) $\int Arccos\,x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^3} = \frac{1}{75p^8}\left[-120\pi+(92-13p^2-4p^4)F'(p)+(148+27p^2+8p^4)E'(p)\right]$
V. T. 214, N. 17.

10) $\int Arccos\,x \frac{dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3}\left[\frac{1}{1-p^2}+\frac{1}{p}\,l\frac{1+p}{1-p}\right]$ V. T. 215, N. 1.

11) $\int Arccos\,x \frac{x\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[-(1-p^2)\frac{\pi}{2}+E'(p)\right]$ V. T. 215, N. 2.

12) $\int Arccos\,x \frac{x^2\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{6p^2}\left[\frac{2}{1-p^2}-\frac{1}{p}\,l\frac{1+p}{1-p}\right]$ V. T. 215, N. 3.

13) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^4(1-p^2)}\left[(1-p^2)\pi-3(1-p^2)F'(p)+E'(p)\right]$ V. T. 215, N. 4.

14) $\int Arccos\,x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{3p^6(1-p^2)}\left[4(1-p^2)\pi-6(1-p^2)F'(p)-(2-3p^2)E'(p)\right]$
V. T. 215, N. 5.

15) $\int Arccos\,x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^5} = \frac{1}{9p^8(1-p^2)}\left[24(1-p^2)\pi-(28-p^2)(1-p^2)F'(p)-\right.$
$\left.-(20-21p^2-2p^4)E'(p)\right]$ V. T. 215, N. 6.

16) $\int Arccos\,x\,.\,x\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^5}} = \frac{1}{3p^2(1-p^2)}\left[\frac{1}{2}p^2\pi+\sqrt{1-p^2}-\frac{1}{p}Arcsin\,p\right]$
V. T. 215, N. 7.

17) $\int Arccos\,x \frac{dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15}\left[\frac{7-5p^2}{(1-p^2)^2}+\frac{4}{p}\,l\frac{1+p}{1-p}\right]$ V. T. 216, N. 1.

18) $\int Arccos\,x \frac{x\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^2}\left[3(1-p^2)^2\frac{\pi}{2}-(1-p^2)F'(p)+2(2-p^2)E'(p)\right]$
V. T. 216, N. 2.

19) $\int Arccos\,x \frac{x^2\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^2}\left[\frac{2}{(1-p^2)^2}-\frac{1}{p}\,l\frac{1+p}{1-p}\right]$ V. T. 216, N. 3.

20) $\int Arccos\,x \frac{x^3\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^4(1-p^2)^2}\left[(1-p^2)^2\pi-(1-p^2)F'(p)-(1-3p^2)E'(p)\right]$
V. T. 216, N. 4.

21) $\int Arccos\,x \frac{x^4\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{30p^4}\left[-2\frac{3-5p^2}{(1-p^2)^2}+\frac{3}{p}\,l\frac{1+p}{1-p}\right]$ V. T. 216, N. 5.

22) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^6(1-p^2)^2}[-4(1-p^2)^2\pi + (14-15p^2)(1-p^2)F'(p) - 2(3-4p^2)E'(p)]$ V. T. 216, N. 6.

23) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2x^2}^7} = \frac{1}{15p^8(1-p^2)^2}[-24(1-p^2)^2\pi + (44-45p^2)(1-p^2)F'(p) + (4-17p^2+15p^4)E'(p)]$ V. T. 216, N. 7.

24) $\int Arccos\, x . x\,dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{15p^4(1-p^2)^2}\left[-p^2(2-6p^2+3p^4)\frac{\pi}{2} - (1-2p^2)\sqrt{1-p^2}^3 + \frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 216, N. 8.

25) $\int Arccos\, x . x^3\,dx \sqrt{\frac{1-x^2}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)^2}\left[p^2(21-58p^2+54p^4-15p^6)\frac{\pi}{2} + (3-11p^2)\sqrt{1-p^2}^3 - (3-5p^2)(1-3p^2)\frac{1}{p} Arcsin\, p\right]$ V. T. 216, N. 9.

26) $\int Arccos\, x . x\,dx \sqrt{\frac{(1-x^2)^3}{(1-p^2x^2)^7}} = \frac{1}{30p^6(1-p^2)}\left[-3p^2(7-11p^4+3p^4)\frac{\pi}{2} - (3-9p^2-4p^4)\sqrt{1-p^2} + \frac{3}{p}(1-3p^2) Arcsin\, p\right]$ V. T. 216, N. 15.

F. Alg. irrat. fract. à dén. $\sqrt{1-p^2+p^2x^2}$; Circ. Inv. *Arccos x*. TABLE 241. Lim. 0 et 1.

1) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{p^2}\left[-\frac{\pi}{2}\sqrt{1-p^2} + E'(p)\right]$ V. T. 211, N. 1.

2) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{9p^4}\left[3\pi\sqrt{1-p^2}^3 - (1-p^2)F'(p) - (5-7p^2)E'(p)\right]$ V. T. 211, N. 2.

3) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{225p^6}[-60\pi\sqrt{1-p^2}^5 + 2(13-19p^2)(1-p^2)F'(p) + (94-219p^2+149p^4)E'(p)]$ V. T. 211, N. 3.

4) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}} = \frac{1}{3675p^8}[840\pi\sqrt{1-p^2}^7 - (404-1041p^2+757p^4)(1-p^2) F'(p) - (1276-4217p^2+4862p^4-2161p^6)E'(p)]$ V. T. 211, N. 4.

5) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p(1-p^2)} Arcsin\, p$ V. T. 211, N. 13.

6) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^2}\left\{-\frac{\pi}{2\sqrt{1-p^2}} + F'(p)\right\}$ (VIII, 593).

7) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{p^4}\left[-\pi\sqrt{1-p^2} + (1-p^2)F'(p) + E'(p)\right]$ V. T. 211, N. 15.

8) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{9p^6}\left[12\pi\sqrt{1-p^2}^3 - (10-9p^2)(1-p^2)F'(p) - \right.$
$\left. -2(7-8p^2)E'(p)\right]$ V. T. 211, N. 16.

9) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^3} = \frac{1}{75p^8}\left[-120\pi\sqrt{1-p^2}^5 + (92-171p^2+75p^4)(1-p^2)\right.$
$\left. F'(p) + (148-323p^2+183p^4)E'(p)\right]$ V. T. 211, N. 17.

10) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3(1-p^2)^2}\left[\sqrt{1-p^2} + \frac{2}{p} Arcsin\, p\right]$ V. T. 212, N. 1.

11) $\int Arccos\, x \frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[\frac{\pi}{2\sqrt{1-p^2}} - E'(p)\right]$ V. T. 212, N. 2.

12) $\int Arccos\, x \frac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^2(1-p^2)}\left[-\sqrt{1-p^2} + \frac{1}{p} Arcsin\, p\right]$ V. T. 212, N. 3.

13) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^4}\left[\frac{\pi}{\sqrt{1-p^2}} - 3F'(p) + E'(p)\right]$ V. T. 212, N. 4.

14) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{3p^6}\left[-4\pi\sqrt{1-p^2} + 6(1-p^2)F'(p) + (2+p^2)E'(p)\right]$
V. T. 212, N. 5.

15) $\int Arccos\, x \frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5} = \frac{1}{9p^8}\left[24\pi\sqrt{1-p^2}^3 - (28-27p^2)(1-p^2)F'(p) - \right.$
$\left. -(20-19p^2-3p^4)E'(p)\right]$ V. T. 212, N. 6.

16) $\int Arccos\, x\,.\,x\,dx \sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^5}} = \frac{1}{6p^2(1-p^2)}\left[\frac{p^2\pi}{\sqrt{1-p^2}} - 2 + \frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$
V. T. 212, N. 7.

17) $\int Arccos\, x \frac{dx}{\sqrt{1-p^2+p^2x^2}^7} = \frac{1}{15p^2(1-p^2)^3}\left[(4+3p^2-2p^4)\sqrt{1-p^2} - \right.$
$\left. -4\frac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 213, N. 1.

$$18)\int Arccos\,x\,\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{15p^2(1-p^2)^2}\left[\frac{3\pi}{2\sqrt{1-p^2}}+(1-p^2)\mathrm{F}'(p)-2(2-p^2)\mathrm{E}'(p)\right]$$

V. T. 213, N. 2.

$$19)\int Arccos\,x\,\frac{x^2\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{15p^4(1-p^2)^2}\left[(1-2p^2)\sqrt{1-p^2}^3-\frac{1-3p^2}{p}\,Arcsin\,p\right]$$

V. T. 213, N. 3.

$$20)\int Arccos\,x\,\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{15p^4(1-p^2)}\left[\frac{\pi}{\sqrt{1-p^2}}-(1-p^2)\mathrm{F}'(p)-(1+2p^2)\mathrm{E}'(p)\right]$$

V. T. 213, N. 4.

$$21)\int Arccos\,x\,\frac{x^4\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{30p^6(1-p^2)}\left[(3-9p^2-4p^4)\sqrt{1-p^2}-\frac{3}{p}(1-3p^2)Arcsin\,p\right]$$

V. T. 213, N. 5.

$$22)\int Arccos\,x\,\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{15p^6}\left[\frac{4\pi}{\sqrt{1-p^2}}-(14+p^2)\mathrm{F}'(p)+2(3+p^2)\mathrm{E}'(p)\right]$$

V. T. 213, N. 6.

$$23)\int Arccos\,x\,\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{15p^8}\left[-24\pi\sqrt{1-p^2}+(44+p^2)(1-p^2)\mathrm{F}'(p)+\right.$$

$$\left.+(4+9p^2+2p^4)\mathrm{E}'(p)\right]$$ V. T. 213, N. 7.

$$24)\int Arccos\,x\,.\,x\,dx\,\sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}}=\frac{1}{15p^2(1-p^2)^2}\left[2(5-2p^2)\frac{p^2\pi}{\sqrt{1-p^2}}-\right.$$

$$\left.-2+\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 8.

$$25)\int Arccos\,x\,.\,x^3\,dx\,\sqrt{\frac{1-x^2}{(1-p^2+p^2x^2)^7}}=\frac{1}{30p^4(1-p^2)}\left[2\frac{p^4\pi}{\sqrt{1-p^2}}-6+(3+2p^2)\right.$$

$$\left.\frac{1-p^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 9.

$$26)\int Arccos\,x\,.\,x\,dx\,\sqrt{\frac{(1-x^2)^3}{(1-p^2+p^2x^2)^7}}=\frac{1}{30p^4(1-p^2)^2}\left[\frac{3p^4\pi}{\sqrt{1-p^2}}+2(3-5p^2)-\right.$$

$$\left.-3\frac{(1-p^2)^2}{p}\,l\frac{1+p}{1-p}\right]$$ V. T. 213, N. 15.

1) $\int Arccos\, p x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}} = \dfrac{\pi}{2p} l(1+p)$ V. T. 12, N. 8 et T. 239, N. 1.

2) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}} = \dfrac{1}{1-p^2}\left[\dfrac{\pi}{2} - \dfrac{1}{p} Arcsin\, p\right]$ V. T. 214, N. 26.

3) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \dfrac{1}{3(1-p^2)^2}\left[(3-p^2)\dfrac{\pi}{2} - \sqrt{1-p^2} - \dfrac{2}{p} Arcsin\, p\right]$ V. T. 215, N. 17.

4) $\int Arccos\, x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^5}} = \dfrac{1}{3p^2(1-p^2)^2}\left[p^2\pi - \sqrt{1-p^2} + \dfrac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 215, N. 18.

5) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{15p^2(1-p^2)^3}\left[p^2(7-6p^2+3p^4)\dfrac{\pi}{2} - (4+3p^2-2p^4)\right.$
$\left.\sqrt{1-p^2} + 4\dfrac{1-3p^2}{p} Arcsin\, p\right]$ V. T. 216, N. 20.

6) $\int Arccos\, x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{15p^4(1-p^2)^3}\left[p^2(2-p^2+3p^4)\dfrac{\pi}{2} + (1-8p^2+2p^4)\right.$
$\left.\sqrt{1-p^2} - (1-5p^2)(1-3p^2)\dfrac{1}{p} Arcsin\, p\right]$ V. T. 216, N. 21.

7) $\int Arccos\, x \dfrac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^7}} = \dfrac{1}{30p^6(1-p^2)^3}\left[-p^2(21-83p^2+114p^4-83p^6+15p^8)\dfrac{\pi}{2} - \right.$
$\left. - (3-19p^2+41p^4-15p^6)\sqrt{1-p^2} + (3-10p^2+15p^4)(1-3p^2)\dfrac{1}{p} Arcsin\, p\right]$ V. T. 216, N. 22.

8) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^3}} = \dfrac{\pi}{2\sqrt{1-p^2}} - \dfrac{1}{2p} l\dfrac{1+p}{1-p}$ V. T. 211, N. 26.

9) $\int Arccos\, x \dfrac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \dfrac{1}{3(1-p^2)}\left[(3-2p^2)\dfrac{\pi}{2\sqrt{1-p^2}} - \right.$
$\left. -1 - \dfrac{1-p^2}{p} l\dfrac{1+p}{1-p}\right]$ V. T. 212, N. 17.

10) $\int Arccos\, x \dfrac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^5}} = \dfrac{1}{6p^2}\left[\dfrac{2p^2\pi}{\sqrt{1-p^2}} + 2 - \dfrac{1+2p^2}{p} l\dfrac{1+p}{1-p}\right]$ V. T. 212, N. 18.

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11) $\int Arccos\, x \frac{x\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15(1-p^2)^2}\left[(15-20p^2+8p^4)\frac{\pi}{2\sqrt{1-p^2}} - \right.$
$\left. -(7-5p^2)-4\frac{(1-p^2)^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 20.

12) $\int Arccos\, x \frac{x^3\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{15p^2(1-p^2)}\left[(5-4p^2)\frac{p^2\pi}{\sqrt{1-p^2}}+(2-5p^2)- \right.$
$\left. -(1+4p^2)\frac{1-p^2}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 21.

13) $\int Arccos\, x \frac{x^5\,dx}{\sqrt{(1-x^2)(1-p^2+p^2x^2)^7}} = \frac{1}{30p^4}\left[8\frac{p^4\pi}{\sqrt{1-p^2}}+2(3+5p^2)- \right.$
$\left. -\frac{3+4p^2+8p^4}{p}\, l\frac{1+p}{1-p}\right]$ V. T. 213, N. 22.

F. Alg. irrat. fract. à dén. d'autre forme; Circ. Inv. *Arcsin x*. TABLE 243. Lim. 0 et 1.

1) $\int Arcsin\, x \frac{dx}{\sqrt[3]{x}} = \frac{3}{2}\left\{\frac{\pi}{2}-3\sqrt[4]{3}.\mathrm{E}'\left(Sin\frac{\pi}{12}\right)+\frac{3+3\sqrt{3}}{2\sqrt[4]{3}}\mathrm{F}'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 23.

2) $\int Arcsin\, x \frac{dx}{\sqrt[3]{x^2}} = 3\left\{\frac{\pi}{2}+\frac{\sqrt{3}-1}{\sqrt[4]{3}}\mathrm{F}'\left(Cos\frac{\pi}{12}\right)-2\sqrt[4]{3}.\mathrm{E}'\left(Cos\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 22.

3) $\int Arcsin\, x \frac{dx}{x\sqrt[3]{x}} = \sqrt[4]{27}.\mathrm{F}'\left(Cos\frac{\pi}{12}\right)-\frac{3}{2}\pi$ V. T. 10, N. 5.

4) $\int Arcsin\, x \frac{dx}{x\sqrt[3]{x^2}} = \frac{3}{2}\sqrt[4]{27}.\mathrm{F}'\left(Sin\frac{\pi}{12}\right)-\frac{3}{4}\pi$ V. T. 10, N. 6.

5) $\int Arcsin\, x \frac{dx}{\sqrt{p+qx}^3} = \frac{1}{q\sqrt{p+q}}\left[4\,\mathrm{F}\left(\frac{\pi}{4},\sqrt{\frac{2q}{p+q}}\right)-\pi\right]$ (VIII, 593).

6) $\int Arcsin\, x \frac{dx}{\sqrt{p-qx}^3} = \frac{1}{q}\left[\frac{\pi}{\sqrt{p-q}}-\frac{4}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right)-\mathrm{F}\left(\frac{\pi}{4},\sqrt{\frac{2q}{p+q}}\right)\right\}\right]$ $[p>q]$
(VIII, 594).

7) $\int Arcsin\, x \frac{x\,dx}{\sqrt{1+x^2}^3} = -\frac{\pi}{4}\sqrt{2}+\frac{1}{2}\sqrt{2}.\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ V. T. 9, N. 8.

8) $\int Arcsin\, x \frac{dx}{\sqrt{p^2+x^2}^3} = \frac{1}{p^2}\left(\frac{1}{2p}\pi - Arccot\, p\right)$ V. T. 12, N. 6.

9) $\int Arcsin\, x \frac{x\,dx}{\sqrt{q^2-p^2x^2}^3} = \frac{\pi}{2p^2\sqrt{q^2-p^2}} - \frac{1}{p^2q} \mathrm{F}'\left(\frac{p}{q}\right)$ V. T. 12, N. 28.

10) $\int Arcsin\, x \frac{dx}{x\sqrt{1-x^2}} = 2\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

11) $\int Arcsin\, x \frac{x}{x^2 - Cos^2\lambda} \frac{dx}{\sqrt{1-x^2}} = 2\,Cosec\,\lambda\,.\sum_0^\infty \frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

12) $\int \frac{Arcsin\, x\,.\sqrt{1-x^2}-x}{x^3} \frac{dx}{\sqrt{1-x^2}} = -\frac{1}{4}\pi$ V. T. 206, N. 9.

13) $\int (Arcsin\, x)^2 \frac{dx}{x^2\sqrt{1-x^2}} = \pi\, l2$ V. T. 206, N. 5.

14) $\int (Arcsin\, x)^p \frac{dx}{x\sqrt{1-x^2}} = \left(\frac{\pi}{2}\right)^p \left\{1 + \sum_1^\infty \frac{1}{4^{n-1}} \frac{2^{2n-1}-1}{p+2n} \sum_1^\infty \frac{1}{(2m)^{2n}}\right\}$ V. T. 206, N. 3.

F. Alg. irrat. fract. à dén. d'autre forme; Circ. Inv. de x, d'autre forme. TABLE 244. Lim. 0 et 1.

1) $\int Arccos\, x \frac{dx}{\sqrt[3]{x}} = \frac{3}{2}\left\{3\sqrt[4]{3}\,.\mathrm{E}'\left(Sin\frac{\pi}{12}\right) - \frac{3+3\sqrt{3}}{2\sqrt[4]{3}}\mathrm{F}'\left(Sin\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 23.

2) $\int Arccos\, x \frac{dx}{\sqrt[3]{x^2}} = 3\left\{\frac{1-\sqrt{3}}{\sqrt[4]{3}}\mathrm{F}'\left(Cos\frac{\pi}{12}\right) + 2\sqrt[4]{3}\,.\mathrm{E}'\left(Cos\frac{\pi}{12}\right)\right\}$ V. T. 8, N. 22.

3) $\int Arccos\, x \frac{dx}{\sqrt{p+qx}^3} = \frac{1}{q}\left\{\frac{\pi}{\sqrt{p}} - \frac{4}{\sqrt{p+q}}\mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\}$ (VIII, 594).

4) $\int Arccos\, x \frac{dx}{\sqrt{p-qx}^3} = \frac{1}{q}\left[\frac{4}{\sqrt{p+q}}\left\{\mathrm{F}'\left(\sqrt{\frac{2q}{p+q}}\right) - \mathrm{F}\left(\frac{\pi}{4}, \sqrt{\frac{2q}{p+q}}\right)\right\} - \frac{\pi}{\sqrt{p}}\right]$ (VIII, 594).

5) $\int Arccos\, x \frac{x\,dx}{\sqrt{1+x^2}^3} = \frac{\pi}{2} - \frac{1}{2}\sqrt{2}.\mathrm{F}'\left(Sin\frac{\pi}{4}\right)$ V. T. 9, N. 8.

6) $\int Arccos\, x \frac{x\,dx}{\sqrt{q^2-p^2x^2}^3} = \frac{1}{p^2q}\mathrm{F}'\left(\frac{p}{q}\right) - \frac{\pi}{2p^2q}$ V. T. 12, N. 28.

7) $\int Arccos\, x \frac{dx}{\sqrt{p^2+x^2}^3} = \frac{1}{p^2} Arccot\, p$ V. T. 12, N. 6.

8) $\int \frac{x\,Arccos\, x - \sqrt{1-x^2}}{(1-x^2)^2} dx = -\frac{1}{4}\pi$ V. T. 206, N. 9.

9) $\int (Arccos\, x)^2 \frac{dx}{\sqrt{1-x^2}^3} = \pi\, l2$ V. T. 206, N. 5.

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10) $\int Arctg\, x \frac{1-x}{x} \frac{dx}{\sqrt{x}} = \pi(\sqrt{2}-1)$ V. T. 10, N. 1.

11) $\int Arctg\, q\, x \frac{dx}{x\sqrt{1-x^2}} = \frac{1}{2}\pi\, l\{q+\sqrt{1+q^2}\}$ (VIII, 354).

12) $\int Arctg\, x \frac{x^3\, dx}{\sqrt{1-x^4}} = \sqrt{2}.\left\{F'\left(Sin\frac{\pi}{4}\right) - E'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 8, N. 27.

13) $\int Arctg\, x \frac{x}{\sqrt{1-x^2}} \frac{dx}{Tg^2\lambda + x^2} = \frac{1}{2}\pi\, Cos\,\lambda . l\left\{Cos\left(\frac{\pi-4\lambda}{8}\right).Cosec\left(\frac{\pi+4\lambda}{8}\right)\right\}$ V. T. 115, N. 30.

14) $\int Arctg\, x \frac{x\, dx}{\sqrt{(1+x^2)(1+x^2-p^2x^2)^3}} = \frac{1}{p^2}\left\{F\left(p,\frac{\pi}{4}\right) - \frac{\pi}{2\sqrt{2(2-p^2)}}\right\}$ (VIII, 596).

15) $\int Arccot\, x \frac{x^3\, dx}{\sqrt{1-x^4}} = \frac{\pi}{4} + \sqrt{2}.\left\{E'\left(Sin\frac{\pi}{4}\right) - F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 8, N. 27.

16) $\int Arccot\, x \frac{x\, dx}{\sqrt{(1+x^2-p^2x^2)^3(1+x^2)}} = \frac{1}{p^2}\left\{\frac{\pi}{2} - \frac{\pi}{2\sqrt{2(2-p^2)}} - F\left(p,\frac{\pi}{4}\right)\right\}$ (VIII, 596).

F. Algébr. fract.; Circ. Inv. d' autre forme. **TABLE 245.** Lim. 0 et 1.

1) $\int Arcsin\,((q\{2x-1\}))\frac{dx}{x^2-(1-x)^2} = 0$ (VIII, 260*).

2) $\int Arcsin\,((q\{2x-1\}))\frac{dx}{x^2+(1-x)^2} = \frac{1}{2}\alpha\pi^2$ (VIII, 260*).

3) $\int Arcsin\,\{q(2x-1)\}\frac{dx}{x^2+(1-x)^2} = 0$ (VIII, 261*).

4) $\int Arccos\,((q\{2x-1\}))\frac{dx}{x^2-(1-x)^2} = 0$ (VIII, 260*).

5) $\int Arccos\,((q\{2x-1\}))\frac{dx}{x^2+(1-x)^2} = \frac{1}{4}(2\alpha+1)\pi^2$ (VIII, 260*).

6) $\int Arccos\,\{q(2x-1)\}\frac{dx}{x^2+(1-x)^2} = \frac{1}{4}\pi^2$ (VIII, 261*).

7) $\int Arctg\left(\frac{2px}{1+x^2}\right)\frac{dx}{x} = \frac{1}{2}\pi\, l\{p+\sqrt{1+p^2}\}$ V. T. 244, N. 11.

8) $\int Arctg\,\{\sqrt{1-x}\}\frac{dx}{(1-x\,Cos^2\lambda)\sqrt{x}} = \frac{2\pi}{Cos\,\lambda}\, l\left\{Cos\left(\frac{\pi-4\lambda}{8}\right).Cosec\left(\frac{\pi+4\lambda}{8}\right)\right\}$ V. T. 122, N. 5.

9) $\int Arctg\left\{\sqrt{1-x^2}\right\}\frac{dx}{1-x^2\,Cos^2\mu}=\frac{\pi}{Cos\,\mu}\,l\left\{Cos\left(\frac{\pi-4\mu}{8}\right).Cosec\left(\frac{\pi+4\mu}{8}\right)\right\}$ V. T. 122, N. 5.

10) $\int Arctg\left\{p\sqrt{1-x^2}\right\}\frac{dx}{1-x^2}=\frac{1}{2}\pi\,l\left\{p+\sqrt{1+p^2}\right\}$ V. T. 244, N. 11.

11) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=\frac{1}{2}\pi\,\mathrm{E}(p,\lambda)-\frac{1}{2}\pi\,Cot\,\lambda.\left\{1-\sqrt{1-p^2\,Sin^2\lambda}\right\}$ V. T. 341, N. 12.

12) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}dx\sqrt{\frac{1-x^2}{1-p^2x^2}}=\frac{\pi}{2p^2}\left\{\mathrm{E}(p,\lambda)-(1-p^2)\mathrm{F}(p,\lambda)\right\}-$

$-\frac{\pi}{2p^2}\,Cot\,\lambda.\left\{1-\sqrt{1-p^2\,Sin^2\lambda}\right\}$ (VIII, 547).

13) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{\pi}{2}\mathrm{F}(p,\lambda)$ V. T. 344, N. 3.

14) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{\pi}{2p^2}\left\{\mathrm{F}(p,\lambda)-\mathrm{E}(p,\lambda)\right\}+$

$+\frac{\pi}{2p^2}\,Cot\,\lambda.\left\{1-\sqrt{1-p^2\,Sin^2\lambda}\right\}$ (VIII, 547).

15) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\left\{\mathrm{F}(p,\lambda)-\mathrm{E}(p,\lambda)\right\}+$

$+\frac{\pi\,Tg\,\lambda}{2p^2}\left\{\sqrt{1-p^2\,Sin^2\lambda}-\sqrt{1-p^2}\right\}$ (VIII, 547).

16) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{2}\;\frac{\pi}{1-p^2}\,\mathrm{E}(p;\lambda)-$

$-\frac{\pi}{2}\;\frac{Tg\,\lambda}{1-p^2}\left\{\sqrt{1-p^2\,Sin^2\lambda}-\sqrt{1-p^2}\right\}$ V. T. 344, N. 7.

17) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\left\{\frac{1}{1-p^2}\mathrm{E}(p,\lambda)-\mathrm{F}(p,\lambda)\right\}-$

$-\frac{\pi\,Tg\,\lambda}{2p^2(1-p^2)}\left\{\sqrt{1-p^2\,Sin^2\lambda}-\sqrt{1-p^2}\right\}$ (VIII, 547).

18) $\int Arccot\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}dx\sqrt{\frac{1-p^2x^2}{1-x^2}}=\frac{1}{2}\pi\,\mathrm{E}(p,\Phi)-\frac{1}{2}\pi\,Cot\,\lambda.\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\right\}$ V. T. 341, N. 13.

19) $\int Arccot\left\{Tg\,\lambda.\sqrt{1-p^2x^2}\right\}dx\sqrt{\frac{1-x^2}{1-p^2x^2}}=\frac{\pi}{2p^2}\left\{\mathrm{E}(p,\Phi)-(1-p^2)\mathrm{F}(p,\Phi)\right\}-$

$-\frac{\pi\,Cot\,\lambda}{2p^2}\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\right\}$ (VIII, 547).

20) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{1}{2}\pi F(p,\Phi)$ V. T. 344, N. 11.

21) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)}}=\frac{\pi}{2p^2}\{F(p,\Phi)-E(p,\Phi)\}+$
$+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 547).

22) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\,dx\sqrt{\frac{1-x^2}{(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\{F(p,\Phi)-E(p,\Phi)\}+$
$+\frac{\pi}{2p^2}Tg\lambda.\sqrt{1-p^2}.\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$ (VIII, 548).

23) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{1}{2}\frac{\pi}{1-p^2}E(p,\Phi)-$
$-\frac{\pi}{2}\frac{Tg\lambda}{\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$ V. T. 344, N. 15.

24) $\int Arccot\{Tg\lambda.\sqrt{1-p^2x^2}\}\frac{x^2\,dx}{\sqrt{(1-x^2)(1-p^2x^2)^3}}=\frac{\pi}{2p^2}\left\{\frac{1}{1-p^2}E(p,\Phi)-F(p,\Phi)\right\}-$
$-\frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$ (VIII, 548).

Dans 18) à 24) on a $Cot\Phi=Tg\lambda.\sqrt{1-p^2}$.

F. Alg. rat. ent.;
Circ. Inv. de x. TABLE 246. Lim. 0 et ∞.

1) $\int Arctg\,x.x^{p-2}dx=\frac{1}{1-p}\frac{\pi}{2}Cosec\frac{1}{2}p\pi\;[0<p<1]$ V. T. 16, N. 2.

2) $\int Arccot\,x.x^{p-1}dx=\frac{\pi}{2p}Sec\frac{1}{2}p\pi\;[0<p<1]$ V. T. 16, N. 2.

3) $\int(1-x\,Arccot\,x)\,dx=\frac{1}{4}\pi$ V. T. 206, N. 9.

F. Alg. rat. fract. à dén. monôme;
Circ. Inv. de x. TABLE 247. Lim. 0 et ∞.

1) $\int Arctg\,q\,x\frac{dx}{x}=\infty$ V. T. 247, N. 3.

2) $\int Arctg\,q\,x\frac{dx}{x^2}=\infty$ (VIII, 367).

3) $\int Arctg\,x\frac{dx}{x^p}=\frac{1}{2}\frac{\pi}{p-1}Sec\left(\frac{p-1}{2}\pi\right)[p<1]$ V. T. 16, N. 2.

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4) $\int \{Arctg\,((px)) - Arctg\,((qx))\} \frac{dx}{x} = \frac{\pi}{2} l \frac{p}{q}$ (VIII, 435).

5) $\int (Arctg\,px)^2 \frac{dx}{x^2} = p\pi\, l2$ (VIII, 607*).

6) $\int (Arctg\,x)^p \frac{dx}{x^2} = p \left(\frac{\pi}{2}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2m-1} \sum_1^\infty \frac{1}{(2n)^{2m}}\right\}$ V. T. 250, N. 9.

7) $\int (Arctg\,x - x) \frac{dx}{x^3} = -\frac{1}{4}\pi$ V. T. 206, N. 9.

8) $\int Arctg\frac{x}{p} . Arctg\frac{x}{q} \frac{dx}{x^2} = \frac{\pi}{2}\left\{\frac{1}{p} l\frac{p+q}{q} + \frac{1}{q} l \frac{p+q}{p}\right\}$ (VIII, 607).

9) $\int Arccot\,px \frac{dx}{x} = \infty$ V. T. 135, N. 4.

10) $\int Arccot\,px \frac{dx}{x^2} = \infty$ V. T. 77, N. 1.

11) $\int Arccot\,x \frac{dx}{x^p} = \frac{\pi}{2(1-p)} Cosec \frac{1}{2} p\pi$ V. T. 16, N. 2.

12) $\int Arctg\frac{x}{p} . Arccot\frac{x}{q} \frac{dx}{x^2} = \infty$ (VIII, 605).

F. Alg. rat. fract. à dén. binôme; Circ. Inv. de x. TABLE 248. Lim. 0 et ∞.

1) $\int Arctg\,px \frac{x\,dx}{q^2+x^2} = \infty$ V. T. 136, N. 14.

2) $\int Arctg\,x \frac{dx}{1-x^2} = \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 138, N. 21.

3) $\int Arctg\,x \frac{x\,dx}{1+x^4} = \frac{1}{16}\pi^2$ V. T. 251, N. 2.

4) $\int Arctg\,x \frac{x\,dx}{1-x^4} = -\frac{\pi}{8} l2$ V. T. 138, N. 24.

5) $\int Arctg\frac{x}{p} \frac{x\,dx}{x^4-q^4} = \frac{\pi}{8q^2} l \frac{(p+q)^2}{p^2+q^2}$ V. T. 248, N. 12.

6) $\int Arccot\,x \frac{dx}{1+x} = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1.

7) $\int Arccot\,x \frac{dx}{1-x} = -\frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 2.

8) $\int Arccot\,px \frac{x\,dx}{1+x^2} = \frac{\pi}{2} l \frac{1+p}{p}$ (VIII, 595).

9) $\int Arccot \frac{x}{p} \frac{x\,dx}{x^2+q^2} = \frac{\pi}{2} l \frac{p+q}{q}$ (VIII, 599).

10) $\int Arccot \frac{x}{p} \frac{x\,dx}{x^2-q^2} = \frac{\pi}{4} l \frac{p^2+q^2}{q^2}$ (VIII, 355).

11) $\int Arccot\, x \frac{dx}{1-x^2} = \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 138, N. 21.

12) $\int Arccot\, x \frac{x\,dx}{1-x^4} = \frac{\pi}{8} l 2$ V. T. 138, N. 24.

13) $\int Arccot \frac{x}{p} \frac{x\,dx}{x^4-q^4} = \frac{\pi}{8q^2} l \frac{p^2+q^2}{(p+q)^2}$ V. T. 248, N. 9, 10.

14) $\int Arccot \frac{x}{p} \frac{x^3\,dx}{x^4-q^4} = \frac{\pi}{8} l \frac{(p+q)^2(p^2+q^2)}{q^4}$ V. T. 248, N. 9, 10.

15) $\int (Arccot\, x)^p \frac{x\,dx}{1+x^2} = \left(\frac{\pi}{2}\right)^p \left[1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(2n)^{2n}}\right]$ V. T. 205, N. 7.

F. Alg. rat. fract. à dén. puiss. de bin.; Circ. Inv. de x. TABLE 249. Lim. 0 et ∞.

1) $\int Arctg \frac{x}{q} \frac{dx}{(p+x)^2} = \frac{q}{p^2+q^2} \left\{ l \frac{q}{p} + \frac{p\pi}{2q} \right\}$ (VIII, 595).

2) $\int Arctg \frac{x}{q} \frac{dx}{(p-x)^2} = \frac{1}{p^2+q^2} \left(q\, l \frac{q}{p} - \frac{1}{2} p\pi \right)$ (VIII, 595).

3) $\int Arctg \frac{x}{q} \frac{x\,dx}{(p^2+x^2)^2} = \frac{\pi}{4p(p+q)}$ (VIII, 596).

4) $\int Arctg \frac{x}{q} \frac{x\,dx}{(p^2-x^2)^2} = -\frac{\pi}{4(p^2+q^2)}$ V. T. 249, N. 1, 2.

5) $\int Arctg\, x \frac{x\,dx}{(1+x^2)^3} = \frac{3}{64}\pi$ V. T. 17, N. 14. 6) $\int Arctg\, x \frac{x^3\,dx}{(1+x^2)^3} = \frac{5}{64}\pi$ V. T. 17, N. 15.

7) $\int (Arctg\, x)^2 \frac{1-x^2}{(1+x^2)^2} dx = -\frac{1}{4}\pi$ V. T. 249, N. 3.

8) $\int Arccot \frac{x}{q} \frac{dx}{(p+x)^2} = \frac{q}{p^2+q^2} \left\{ \frac{q\pi}{2p} + l \frac{p}{q} \right\}$ (VIII, 595).

9) $\int Arccot \frac{x}{q} \frac{dx}{(p-x)^2} = \frac{q}{p(p^2+q^2)} \left\{ p\, l \frac{p}{q} + \frac{1}{2} q\pi \right\}$ (VIII, 595).

10) $\int Arccot\frac{x}{q}\,\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi q}{4p^2(p+q)}$ (VIII, 596).

11) $\int Arccot\frac{x}{q}\,\frac{x\,dx}{(p^2-x^2)^2}=\frac{-\pi q^2}{4p^2(p^2+q^2)}$ V. T. 249, N. 8, 9.

12) $\int Arccot\,x\,\frac{x\,dx}{(1+x^2)^3}=\frac{5}{64}\pi$ V. T. 17, N. 14.

13) $\int Arccot\,x\,\frac{x^3\,dx}{(1+x^2)^3}=\frac{3}{64}\pi$ V. T. 17, N. 15.

14) $\int (Arccot\,x)^2\,\frac{1-x^2}{(1+x^2)^2}\,dx=\frac{1}{4}\pi$ V. T. 249, N. 10.

F. Alg. rat. fract. à dén. d'autre forme; Circ. Inv. de x. TABLE 250. Lim. 0 et ∞.

1) $\int Arctg\,x\,\frac{dx}{(1+x)x}=\frac{\pi}{4}\,l2+\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 137, N. 5.

2) $\int Arctg\,x\,\frac{dx}{(1-x)x}=\frac{\pi}{4}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 137, N. 7.

3) $\int Arctg\,q\,x\,\frac{dx}{x(p^2+x^2)}=\frac{\pi}{2p^2}\,l(1+pq)$ (VIII, 354).

4) $\int Arctg\,q\,x\,\frac{dx}{x(1+p^2x^2)}=\frac{\pi}{2}\,l\frac{p+q}{p}$ (VIII, 599).

5) $\int Arctg\frac{x}{q}\,\frac{dx}{x(p^2+x^2)}=\frac{\pi}{2p^2}\,l\frac{p+q}{q}$ (VIII, 603).

6) $\int Arctg\,q\,x\,\frac{dx}{x(1-p^2x^2)}=\frac{\pi}{4}\,l\frac{p^2+q^2}{p^2}$ V. T. 248, N. 9.

7) $\int Arctg\,x\,\frac{dx}{(1-x^4)x}=\frac{3\pi}{8}\,l2$ V. T. 138, N. 19.

8) $\int Arctg\,q\,x\,\frac{dx}{x(x^4-p^4)}=\frac{-\pi}{8p^4}\,l\left\{(1+pq)^2(1+p^2q^2)\right\}$ V. T. 248, N. 14.

9) $\int (Arctg\,x)^p\,\frac{dx}{x(1+x^2)}=\left(\frac{\pi}{2}\right)^p\left\{1-\sum_1^\infty\frac{2}{p+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 205, N. 7.

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10) $\int Arctg\, x . \left(\frac{x^p}{1+x^{2p}}\right)^{2q} \frac{dx}{x} = \frac{\sqrt{\pi^3}}{2^{2q+2}p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 421).

11) $\int Arctg\, x \frac{x^{2p}}{(1+x^{2p})^2} \frac{dx}{x} = \frac{\pi}{8p}$ (VIII, 421).

12) $\int Arctg\, x \frac{1-x}{1+x} \frac{dx}{1+x^2} = \frac{\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 250, N. 1, 3.

13) $\int Arctg\, x \frac{1+x}{1-x} \frac{dx}{1+x^2} = -\frac{\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 250, N. 2, 3.

14) $\int Arctg\, qx \frac{x}{p^2+x^2} \frac{dx}{r^2+x^2} = \frac{\pi}{2(p^2-r^2)} l \frac{1+pq}{1+qr}$ (VIII, 603).

15) $\int \frac{Arctg\, x}{(x^p+x^{-p})^q} \frac{dx}{1+x^2} = \frac{\sqrt{\pi^3}}{2^{2q+2}p} \frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 550).

16) $\int Arctg\, x \frac{x}{(1+x^2)^2 - Sin^2 2\lambda} dx = \frac{\pi}{4 Sin 2\lambda} l \frac{1+Sin\lambda}{Cos\lambda}$ V. T. 138, N. 26.

17) $\int Arccot \frac{x}{q} \frac{dx}{x(p^2+x^2)} = \infty$ (VIII, 602).

18) $\int Arccot\, x \frac{1-2x-x^2}{(1+x)(1+x^2)} dx = -\frac{3\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^n}$ V. T. 138, N. 22.

19) $\int Arccot\, x \frac{1-x}{1+x} \frac{dx}{1+x^2} = -\frac{\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 8 et T. 250, N. 18.

20) $\int Arccot\, x \frac{1+2x-x^2}{(1-x)(1+x^2)} dx = \frac{3\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^2}$ V. T. 138, N. 23.

21) $\int Arccot\, x \frac{1+x}{1-x} \frac{dx}{1+x^2} = \frac{\pi}{4} l 2 + \overset{\infty}{\underset{0}{\Sigma}} \frac{(-1)^n}{(2n+1)^2}$ V. T. 248, N. 8 et T. 250, N. 20.

22) $\int Arccot\, qx \frac{x}{p^2+x^2} \frac{dx}{r^2+x^2} = \frac{\pi}{2(p^2-r^2)} l \frac{(qr+1)p}{(pq+1)r}$ (VIII, 603).

23) $\int Arccot \frac{x}{p} \frac{(q-xi)^{-a}-(q+xi)^{-a}}{i} dx = \frac{\pi}{a-1} \left\{ \left(\frac{1}{q}\right)^{a-1} - \left(\frac{1}{p+q}\right)^{a-1} \right\}$ (VIII, 582).

24) $\int Arccot\, x \frac{x}{(1+x^2)^2 - Sin^2 2\lambda} dx = \frac{\pi}{8 Sin 2\lambda} l \frac{(1+Sin 2\lambda)(1-Sin\lambda)}{(1-Sin 2\lambda)(1+Sin\lambda)}$ V. T. 138, N. 26.

1) $\int Arctg\frac{x}{q}\frac{x\,dx}{\sqrt{p^2+x^2}^3}=\frac{1}{\sqrt{p^2-q^2}}Arctg\frac{\sqrt{p^2-q^2}}{q}\,[q<p],=\frac{1}{\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\,[q<p]$ V. T. 21, N. 13.

2) $\int Arctg\,x\frac{dx}{(1+x)\sqrt{x}}=\frac{1}{4}\pi^2$ (IV, 363).

3) $\int Arctg\,x\frac{dx}{x\sqrt{1+x^2}}=2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

4) $\int Arctg\,x\frac{1}{Sin^2\lambda-x^2\,Cos^2\lambda}\frac{dx}{\sqrt{1+x^2}}=2\,Cosec\,\lambda\,.\sum_0^\infty\frac{Sin\{(2n+1)\lambda\}}{(2n+1)^2}$ V. T. 207, N. 1.

5) $\int Arctg\frac{x}{p}\frac{x^2+2p^2-q^2}{\sqrt{p^2+x^2}}\frac{x\,dx}{(q^2+x^2)^2}=\frac{p}{q\sqrt{p^2-q^2}}Arctg\frac{\sqrt{p^2-q^2}}{q}\,[q<p],=$

$=\frac{p}{q\sqrt{q^2-p^2}}\,l\frac{q+\sqrt{q^2-p^2}}{p}\,[q>p]$ V. T. 21, N. 13.

6) $\int Arctg\,x\frac{x\,dx}{\sqrt{(1+x^2-p^2x^2)^3(1+x^2)}}=\frac{1}{p^2}\left\{F'(p)-\frac{\pi}{2\sqrt{1-p^2}}\right\}$ (VIII, 596).

7) $\int Arctg\,x\frac{1+x^2}{(1-x^2)^2}\frac{x\,dx}{\sqrt{1+x^4}}=\frac{1}{4}\pi$ (VIII, 596).

8) $\int Arctg\,x\frac{dx}{\sqrt[3]{x^2}+\sqrt[3]{x^4}}=\frac{3}{8}\pi^2$ (IV, 363).

9) $\int(Arctg\,x)^2\frac{dx}{x^2\sqrt{1+x^2}}=-\frac{1}{4}\pi^2+4\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 3.

10) $\int Arccot\,x\frac{dx}{\sqrt{1+x^2}}=2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

11) $\int Arccot\frac{x}{q}\frac{x\,dx}{\sqrt{p^2+x^2}^3}=\frac{1}{2}\left\{\frac{\pi}{2p}-\frac{1}{\sqrt{p^2-q^2}}Arctg\frac{\sqrt{p^2-q^2}}{q}\right\}[q<p],=$

$=\frac{1}{2}\left\{\frac{\pi}{2p}+\frac{1}{\sqrt{q^2-p^2}}\,l\frac{p}{q+\sqrt{q^2-p^2}}\right\}[q>p]$ V. T. 21, N. 13.

12) $\int Arccot\,x\frac{dx}{(1+x)\sqrt{x}}=\frac{1}{4}\pi^2$ V. T. 251, N. 2.

13) $\int Arccot\,x\frac{x}{Cos^2\lambda-x^2\,Sin^2\lambda}\frac{dx}{\sqrt{1+x^2}}=-2\,Cosec\,\lambda\,.\sum_0^\infty\frac{Sin\{(2n+1)\}\lambda}{(2n+1)^2}$ V. T. 207, N. 1.

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14) $\int Arccot\, x \frac{x^2+2p^2-q^2}{\sqrt{p^2+x^2}} \frac{x\,dx}{(q^2+x^2)^2} = \frac{\pi p}{2q} - \frac{p}{q\sqrt{p^2-q^2}} Arctg \frac{\sqrt{p^2-q^2}}{q}\ [q<p], =$

$= \frac{\pi p}{2q} + \frac{p}{q\sqrt{q^2-p^2}} l \frac{p}{q+\sqrt{q^2-p^2}}\ [q>p]$ V. T. 21, N. 13.

15) $\int Arccot\, x \frac{x\,dx}{\sqrt{(1+x^2-p^2x^2)^3(1+x^2)}} = \frac{1}{p^2}\left\{\frac{\pi}{2} - F'(p)\right\}$ (VIII, 597).

16) $\int Arccot\, x \frac{1+x^2}{(1-x^2)^2} \frac{x\,dx}{\sqrt{1+x^4}} = \frac{\pi}{4}$ (VIII, 596).

17) $\int (Arccot\, x)^2 \frac{x}{\sqrt{1+x^2}} dx = -\frac{1}{4}\pi^2 + 4\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 10.

F. Alg. fract.; Circ. Inv. d'autre forme. TABLE 252. Lim. 0 et ∞.

1) $\int \{Arctg((r+px)) - Arctg((r+qx))\} \frac{dx}{x} = Arccot\, r \,.\, l\frac{p}{q}$ (VIII, 435).

2) $\int Arctg\left(\frac{2px}{1+x^2}\right)\frac{dx}{x} = \pi\, l\,\{p+\sqrt{1+p^2}\}$ V. T. 245, N. 7.

3) $\int \left(Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}\right)^2 \frac{dx}{x^2} = \frac{2\pi}{r} lp + \frac{2\pi}{p} lr - 2\pi\frac{p+r}{pr} l\frac{p+r}{2}$ (VIII, 606).

4) $\int Arctg\left\{\frac{x^2+pr}{(p-r)x}\right\}.Arctg\frac{q}{x}\frac{dx}{x^2} = \infty$ (VIII, 605).

5) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.Arctg\frac{q}{x}\frac{dx}{x^2} = \infty$ (VIII, 605).

6) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}.Arctg\left\{\frac{(q-s)x}{x^2+qs}\right\}\frac{dx}{x^2} = \frac{\pi}{2}\left\{\frac{q-s}{qs} l\frac{p}{r} + \frac{p-r}{pr} l\frac{q}{s} + \frac{1}{p} l\frac{p+q}{p+s} + \frac{1}{q} l\frac{q+p}{q+r} + \right.$

$\left. + \frac{1}{r} l\frac{r+s}{r+q} + \frac{1}{s} l\frac{s+r}{s+q}\right\}$ (VIII, 606).

7) $\int Arctg\frac{x}{p}.Arctg\left\{\frac{(q-s)x}{x^2+qs}\right\}\frac{dx}{x^2} = \frac{\pi}{2}\left\{\frac{1}{p} l\frac{q}{s} + \frac{p+s}{ps} l(p+s) - \frac{p+q}{pq} l(p+q) - \frac{q-s}{qs} lp\right\}$

(VIII, 606).

8) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.Arctg\frac{x}{q}\frac{dx}{x^2} = \frac{\pi}{2}\left\{p\, l\frac{1+pq}{pq} - r\, l\frac{1+qr}{qr} + \frac{1}{q} l\frac{1+pq}{1+qr}\right\}$ (VIII, 607).

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9) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}.Arctg\left\{\frac{(q-s)x}{qs+x^2}\right\}\frac{dx}{x^2}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{1+pq}{q}l(1+pq)+\right.$
$\left.+\frac{1+ps}{s}l(1+ps)-\frac{1+rs}{s}l(1+rs)+\frac{1+qr}{q}l(1+qr)\right\}$ (VIII, 606).

10) $\int Arctg(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 2. 11) $\int Arctg(x^3)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 8.

12) $\int Arctg\left(\frac{1}{q}\sqrt{x}\right)\frac{dx}{(p^2+x)^2}=\frac{\pi}{2p(p+q)}$ V. T. 249, N. 3.

13) $\int Arctg\left\{\frac{(p-r)x}{x^2+pr}\right\}\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}\,l\frac{p(r+q)}{r(p+q)}$ (VIII, 603).

14) $\int Arctg\left\{\frac{(p-r)x}{1+prx^2}\right\}\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}\,l\frac{1+pq}{1+qr}$ (VIII, 603).

15) $\int Arctg\left\{\frac{p}{\sqrt{1+x^2}}\right\}\frac{dx}{\sqrt{1+x^2}}=\frac{\pi}{2}\,l\{p+\sqrt{1+p^2}\}$ V. T. 245, N. 7.

16) $\int Arctg\left\{\frac{px}{\sqrt{1+x^2}}\right\}\frac{dx}{x\sqrt{1+x^2}}=\frac{\pi}{2}\,l\{p+\sqrt{1+p^2}\}$ V. T. 252, N. 15.

17) $\int\{Arctg(\sqrt{x})\}^2\frac{dx}{x\sqrt{1+x}}=-\frac{1}{2}\pi^2+8\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 9.

18) $\int Arccot(x^2)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 251, N. 12.

19) $\int Arccot(x^3)\frac{dx}{1+x^2}=\frac{1}{8}\pi^2$ V. T. 252, N. 11.

20) $\int Arccot\left(\frac{\sqrt{x}}{q}\right)\frac{dx}{(p^2+x)^2}=\frac{q\pi}{2p^2(p+q)}$ V. T. 249, N. 10.

21) $\int\{Arccot(\sqrt{x})\}^2\frac{dx}{\sqrt{1+x}}=-\frac{1}{2}\pi^2+8\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 251, N. 17.

F. Alg. fract.;
Circ. Inverse. TABLE 253. Lim. 1 et ∞.

1) $\int Arctg\,x\frac{dx}{x}=\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 108, N. 10.

2) $\int Arctg\,x\frac{dx}{x^2}=\frac{\pi}{4}+\frac{1}{2}l2$ (VIII, 595).

3) $\int Arctg\, q x \frac{dx}{x^2} = Arctg\, q + \frac{1}{2} q\, l \frac{1+q^2}{q^2}$ (VIII, 367).

4) $\int (Arctg\, x)^2 \frac{dx}{x^2} = \frac{\pi^2}{16} + \frac{3}{4}\pi\, l2 - \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 253, N. 7.

5) $\int (Arctg\, x)^p \frac{dx}{x^2} = \left(\frac{\pi}{4}\right)^p + \frac{2^p-1}{2} p \left(\frac{\pi}{4}\right)^{p-1} \left\{1 - \sum_1^\infty \frac{2}{p+2n-1} \sum_1^\infty \frac{1}{(4m)^{2n}}\right\}$ V. T. 76, N. 10.

6) $\int Arctg\, x \frac{dx}{x(1+x)} = \frac{3\pi}{8} l2$ V. T. 235, N. 11 et T. 250, N. 1.

7) $\int Arctg\, x \frac{dx}{x(1+x^2)} = \frac{3}{8}\pi\, l2 - \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 235, N. 12 et T. 250, N. 3.

8) $\int Arccot\, x \frac{dx}{x} = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 230, N. 3.

9) $\int Arccot \frac{x}{p} \frac{dx}{x^2} = Arctg\, p - \frac{1}{2p} l(1+p^2)$ (VIII, 367*).

10) $\int Arccot\, x \frac{x\,dx}{1+x^2} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

11) $\int (Arccot\, x)^p \frac{x\,dx}{1+x^2} = \frac{\pi^p}{2^{2p}} \left\{1 - 2\sum_1^\infty \frac{1}{p+2n} \sum_1^\infty \frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

12) $\int Arccosec \frac{x}{p} \frac{dx}{x^2} = Arcsin\, p + \frac{1}{p}\sqrt{1-p^2} - \frac{1}{p}$ V. T. 76, N. 1.

F. Algébr.; Circ. Inverse. TABLE 254. Limites diverses.

1) $\int_{-1}^{1} Arcsin\, x \frac{dx}{1 \pm px} = \pm \frac{\pi}{2p}\left\{l(1-p^2) + 2\,l\frac{2}{1+\sqrt{1-p^2}}\right\} [p^2<1], =$

$= \pm \frac{\pi}{2p}\left\{l(p^2-1) + 2\,l2p\right\} [p^2>1]$ (VIII, 594).

2) $\int_{-1}^{1} Arccos\, x \,.\, (1-x^2)^a\, dx = \pi \frac{2^{a/2}}{3^{a/2}}$ (VIII, 549).

3) $\int_{-1}^{1} Arccos\, x \,.\, (1-x^2)^{a-\frac{1}{2}}\, dx = \frac{\pi^2}{2} \frac{1^{a/2}}{2^{a/2}}$ (VIII, 549).

4) $\int_{-1}^{1} Arccos\, x \frac{dx}{1 \pm px} = \pm \frac{\pi}{p} l \frac{1+\sqrt{1-p^2}}{2(1\mp p)} [p^2<1], = \pm\frac{\pi}{p} l\{2p(p\mp 1)\} [p^2>1]$ (VIII, 594).

5) $\int_{-1}^{1} Arccos\, x \frac{dx}{1+x^2} = \frac{1}{4}\pi^2$ (VIII, 550).

6) $\int_{-1}^{1} Arccos\, x \frac{dx}{Sin^2\lambda + x^2 Cos^2\lambda} = \pi(\pi - 2\lambda)\, Cosec\, 2\lambda$ (VIII, 550).

7) $\int_{-1}^{1} Arccos\, x \frac{x^{2a}\, dx}{\sqrt{1-x^2}} = \frac{1}{2}\pi^2 \frac{1^{a/2}}{2^{a/2}}$ (VIII, 549).

8) $\int_{-\infty}^{\infty} Arctg\, x \frac{dx}{1+(q+px)^2} = \frac{\pi}{p}\left\{Arctg\left(\frac{2pq}{1+q^2-p^2}\right) - Arctg\left(\frac{2p}{1-q^2-p^2}\right)\right\}$ V. T. 254, N. 10.

9) $\int_{-\infty}^{\infty} Arctg\left(\frac{p\, Cos\,\lambda - x}{p\, Sin\,\lambda}\right)\frac{dx}{1+x^2} = \pi\, Arctg\left(\frac{p\, Cos\,\lambda}{1+p\, Sin\,\lambda}\right)$ Cauchy, Ann. Math. 17, 84.

10) $\int_{-\infty}^{\infty} Arctg\,(q+px)\frac{dx}{1+x^2} = \frac{\pi}{2}\left\{Arctg\left(\frac{2q}{1-q^2-p^2}\right) - Arctg\left(\frac{2pq}{1+q^2-p^2}\right)\right\}$ (VIII, 355).

11) $\int_{0}^{\sqrt{\frac{1}{2}}} Arcsin\, x \frac{dx}{x} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

12) $\int_{0}^{\sqrt{\frac{1}{2}}} (Arcsin\, x)^p \frac{dx}{x} = \frac{\pi^p}{2^{2p}}\left\{1 - \sum_{1}^{\infty}\frac{2}{p+2n}\sum_{1}^{\infty}\frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

13) $\int_{\sqrt{\frac{1}{2}}}^{1} Arccos\, x \frac{x\,dx}{1-x^2} = \frac{1}{8}\pi\, l2 + \frac{1}{2}\sum_{0}^{\infty}\frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

14) $\int_{\sqrt{\frac{1}{2}}}^{1} (Arccos\, x)^p \frac{x\,dx}{1-x^2} = \frac{\pi^p}{2^{2p}}\left\{1 - 2\sum_{1}^{\infty}\frac{1}{p+2n}\sum_{1}^{\infty}\frac{1}{(4m)^{2n}}\right\}$ V. T. 204, N. 6.

15) $\int_{p}^{q}\left\{Arctg\frac{x}{q} - Arctg\frac{x}{p}\right\}\frac{x\,dx}{1-x^4} = \frac{1}{q}(Arctg\, p - Arctg\, q)\, l\frac{(p+1)(q-1)}{(q+1)(p-1)}$

Winckler, Sitz. Ber. Wien. 43, 315.

F. Algébr.; Autre Fonction. **TABLE 255.** Limites diverses.

1) $\int_{0}^{1} li\left(\frac{1}{x}\right).x\,dx = 0$ V. T. 283, N. 1.

2) $\int_{0}^{1} li(x).x^{p-1}dx = -\frac{1}{p}l(1+p)\,[p \geqq -1]$ (VIII, 542).

3) $\int_{0}^{1} li(x)\frac{dx}{x^{q+1}} = \frac{1}{q}l(1-q)\,[q<1]$ (VIII, 542).

4) $\int_{1}^{\infty} li(x)\frac{dx}{x^{q+1}} = -\frac{1}{q}l(q-1)\,[q>1]$ (VIII, 542).

5) $\int_0^\infty Si(px)\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,Ei(-pq)$ (VIII, 468).

6) $\int_0^\infty Si(px)\,\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\,Ci(pq)$ (VIII, 469).

7) $\int_0^\infty Ci(px)\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,Ei(-pq)$ (VIII, 468).

8) $\int_0^\infty Ci(px)\,\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\left\{\frac{\pi}{2}-Si(pq)\right\}$ (VIII, 469).

9) $\int_0^\infty \left\{\frac{\Gamma(cx+p)}{(ax+r)^{cx+p}}-\frac{\Gamma(ex+p)}{\left(\frac{ae}{c}x+r\right)^{ex+p}}\right\}\frac{dx}{x}=\frac{\Gamma(p)}{r^p}\,l\frac{e}{c}$

10) $\int_0^\infty \left\{\frac{\Gamma(ax+p)}{\Gamma(ax+r)}-\frac{\Gamma(bx+p)}{\Gamma(bx+r)}\right\}\frac{dx}{x}=\frac{\Gamma(p)}{\Gamma(r)}\,l\frac{b}{a}$

Sur 9) et 10) voyez Winckler, Sitz. Ber. Wien. 21, 389.

11) $\int_0^p E(x)\,\frac{x}{1-x^2}\,\frac{dx}{\sqrt{p^2-x^2}}=\frac{p\pi}{2\sqrt{1-p^2}}$ $[p<1]$ (VIII, 478).

PARTIE TROISIÈME.

PARTIE TROISIÈME.

F. Exponent.; Logarithmique. } Fonction entière. TABLE 256. Lim. 0 et ∞.

1) $\int e^{-x}\, lx\, dx = -\mathrm{A}$ (VIII, 363).

2) $\int e^{-px}\, lx\, dx = -\frac{1}{p}(\mathrm{A} + lp)$ (VIII, 363*).

3) $\int e^{-px}\, l(q+x)\, dx = \frac{1}{p}\{lq - e^{pq}\, Ei(-pq)\}$ (VIII, 591).

4) $\int e^{-px}\, l(q-x)^2\, dx = \frac{1}{p}\{lq^2 - 2e^{-pq}\, Ei(pq)\}$ (VIII, 591).

5) $\int e^{-px}\, l(q^2-x^2)^2\, dx = \frac{2}{p}\{lq^2 - e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq)\}$ (VIII, 591).

6) $\int e^{-px}\, l(q^2+x^2)\, dx = \frac{1}{p}\{lq^2 - 2\, Ci(pq).Cos\, pq - 2\, Si(pq).Sin\, pq + \pi\, Sin\, pq\}$ (VIII, 592).

7) $\int e^{-px}\, l(q^4-x^4)^2\, dx = \frac{2}{p}\{4\, lq - e^{pq}\, Ei(-pq) - e^{-pq}\, Ei(pq) - 2\, Ci(pq).Cos\, pq -$
$- 2\, Si(pq).Sin\, pq + \pi\, Sin\, pq\}$ V. T. 256, N. 5, 6.

8) $\int e^{-px^2}\, lx\, dx = -\frac{1}{4}(\mathrm{A} + lp + 2\, l2)\sqrt{\frac{\pi}{p}}$ (VIII, 363).

9) $\int e^{-p^2x^2}\, l(q^2+x^2)\, dx = \frac{1}{p}\sqrt{\pi}.\left\{lq - \sum_1^\infty (-1)^n \frac{(n+1)^{n-1/1}}{(2pq)^{2n}}\right\}$ Lobatto, N. V. Amst. 6, 1.

10) $\int l(1+e^{-x})\, dx = \frac{1}{12}\pi^2$ V. T. 114, N. 1.

11) $\int l(1-e^{-x})\, dx = -\frac{1}{6}\pi^2$ V. T. 114, N. 14.

12) $\int e^{-2ax}\, l(1+e^{-x})\, dx = \frac{1}{2a}\sum_1^{2a}\frac{(-1)^{n-1}}{n}$ V. T. 106, N. 3.

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13) $\int e^{-(2a+1)x}\, l(1+e^{-x})\, dx = \frac{2}{2a+1}\, l2 + \frac{1}{2a+1} \sum_{1}^{2a+1} \frac{(-1)^n}{n}$ V. T. 106, N. 2.

14) $\int e^{-ax}\, l(1-e^{-x})\, dx = -\frac{1}{a} \sum_{1}^{a} \frac{1}{n}$ V. T. 106, N. 7.

15) $\int (1+e^{-x})^{q-1}\, e^{-x}\, l(1+e^{-x})\, dx = \frac{1}{q}\, 2^q\, l2 - \frac{1}{q^2}(2^q - 1)$ V. T. 106, N. 5.

16) $\int (1-e^{-x})^{q-1} e^{-x}\, l(1-e^{-x})\, dx = -\frac{1}{q^2}$ V. T. 106, N. 8.

17) $\int e^{-2ax}\, l(e^x + e^{-x})\, dx = \frac{1}{a}\left\{\frac{1}{2a} + l2 - \sum_{1}^{\infty} \frac{(-1)^n}{2a+n+1}\right\}$ V. T. 107, N. 9.

18) $\int l(1 + 2 e^{-x}\, Cos\,\lambda + e^{-2x})\, dx = \frac{1}{6}\pi^2 - \frac{1}{2}\lambda^2$ (VIII, 542).

19) $\int e^{-3ax}\, l(e^x + e^{-x} + 1)\, dx = \frac{1}{9a^2} + \frac{1}{3a} \sum_{0}^{a-1} \frac{9n+5}{(3n+1)(3n+2)(3n+3)}$ V. T. 107, N. 1, 12.

20) $\int e^{-(3a+1)x}\, l(e^x + e^{-x} + 1)\, dx = \frac{1}{(3a+1)^2} + \frac{3\, l3}{2(3a+1)} + \frac{\pi}{2(3a+1)\sqrt{3}} +$

$+ \frac{1}{3a+1}\left\{-2 + \sum_{1}^{a} \frac{9n-1}{(3n-1)\, 3n\, (3n+1)}\right\}$ V. T. 107, N. 1, 10.

21) $\int e^{-(3a-1)x}\, l(e^x + e^{-x} + 1)\, dx = \frac{1}{(3a-1)^2} + \frac{3\, l3}{2(3a-1)} - \frac{\pi}{2(3a-1)\sqrt{3}} +$

$+ \frac{1}{3a-1} \sum_{1}^{a-1} \frac{9n+2}{3n(3n+1)(3n+2)}$ V. T. 107, N. 1, 11.

22) $\int e^{-3ax}\, l(e^x + e^{-x} - 1)\, dx = \frac{1}{9a^2} + \frac{(-1)^{a-1}}{3a} \sum_{0}^{a-1} (-1)^n \frac{9n+7}{(3n+1)(3n+2)(3n+3)}$

V. T. 107, N. 1, 15.

23) $\int e^{-(3a+1)x}\, l(e^x + e^{-x} - 1)\, dx = \frac{1}{(3a+1)^2} + \frac{(-1)^a \pi}{(3a+1)\sqrt{3}} + \frac{(-1)^a}{3a+1}\left\{-2 +\right.$

$\left. + \sum_{1}^{a} (-1)^n \frac{9n+1}{(3n-1)\, 3n\, (3n+1)}\right\}$ V. T. 107, N. 1, 13.

24) $\int e^{-(3a-1)x}\, l(e^x + e^{-x} - 1)\, dx = \frac{1}{(3a-1)^2} + \frac{(-1)^{a-1} \pi}{(3a-1)\sqrt{3}} + \frac{(-1)^{a-1}}{3a-1}\left\{-2 +\right.$

$\left. + \sum_{1}^{a-1} (-1)^n \frac{9n+4}{3n(3n+1)(3n+2)}\right\}$ V. T. 107, N. 1, 14.

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25) $\int (1+e^{-qx})^r e^{-qx} \{l(1+e^{-qx})\}^a dx = \frac{2^{r+1}}{q} \sum_1^a \frac{1^{n/1}}{(r+1)^n} \frac{1}{2^n} - (-1)^a \frac{1^{a/1}}{q(r+1)^{a+1}}$ V. T. 106, N. 34.

26) $\int (1-e^{-qx})^r e^{-qx} \{l(1-e^{-qx})\}^a dx = (-1)^a \frac{1^{a/1}}{q(r+1)^{a+1}}$ V. T. 106, N. 35.

F. Expon. polyn. en dén.; Logar. en num. lx. TABLE 257. Lim. 0 et ∞.

1) $\int lx \frac{e^{px}+e^{-px}}{e^{\pi x}+e^{-\pi x}} dx = -\frac{1}{2} \mathrm{A}\, Sec \frac{1}{2} p - \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1)\pi - p\}}{(2n+1)\pi - p} + \frac{l\{(2n+1)\pi + p\}}{(2n+1)\pi + p}\right\}$ $[p<\pi]$ (VIII, 567).

2) $\int lx \frac{e^{ax}+e^{-ax}}{e^{bx}+e^{-bx}} dx = \frac{\pi}{2b} Sec \frac{a\pi}{2b} . l2\pi + \frac{\pi}{b} \sum_1^b (-1)^{n-1} Cos\left(\frac{2n-1}{2b} a\pi\right) . l \frac{\Gamma\left(\frac{2b+2n-1}{4b}\right)}{\Gamma\left(\frac{2n-1}{4b}\right)}$

$[a+b \text{ impair}], = \frac{\pi}{2b} Sec \frac{a\pi}{2b} . l\pi + \frac{\pi}{b} \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1} Cos\left(\frac{2n-1}{2b} a\pi\right) . l \frac{\Gamma\left(\frac{2b-2n+1}{2b}\right)}{\Gamma\left(\frac{2n-1}{2b}\right)}$

$[a+b \text{ pair}]$ V. T. 148, N. 6.

3) $\int lx \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} dx = -\frac{1}{2} \mathrm{A}\, Tg \frac{1}{2} p - \sum_0^\infty \left\{\frac{l\{(2n+1)\pi - p\}}{(2n+1)\pi - p} - \frac{l\{(2n+1)\pi + p\}}{(2n+1)\pi + p}\right\}$ $[p<\pi]$ (VIII, 567).

4) $\int lx \frac{e^x dx}{(e^x+1)^2} = \frac{1}{2} l2\pi + \frac{1}{2} Z'\left(\frac{1}{2}\right)$ V. T. 147, N. 7.

5) $\int lx \frac{dx}{e^{x^2}+e^{-x^2}} = \frac{1}{4} \sum_0^\infty (-1)^n \{l(2n+1) + 2l2 + \mathrm{A}\} \sqrt{\frac{\pi}{2n+1}}$ (VIII, 488).

6) $\int lx \frac{dx}{e^x+e^{-x}-1} = \frac{2\pi}{\sqrt{3}} \left\{\frac{5}{6} l2\pi - l\Gamma\left(\frac{1}{6}\right)\right\}$ V. T. 148, N. 5.

7) $\int lx \frac{dx}{e^x+e^{-x}+2 Cos \lambda} = \frac{\pi}{2} Cosec \lambda . l \frac{(2\pi)^{\frac{\lambda}{\pi}} \Gamma\left(\frac{1}{2}+\frac{\lambda}{2\pi}\right)}{\Gamma\left(\frac{1}{2}-\frac{\lambda}{2\pi}\right)}$ V. T. 147, N. 9.

8) $\int lx \frac{dx}{e^{x^2}+e^{-x^2}+1} = \frac{1}{2} Cosec \frac{\pi}{3} . \sum_1^\infty (-1)^n Sin \frac{n\pi}{3} . (ln + 2l2 + \mathrm{A}) \sqrt{\frac{\pi}{n}}$ (VIII, 487).

1) $\int l(1+x^2)\frac{dx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} = l\frac{4}{\pi}$ (IV, 370).

2) $\int l(1+x^2)\frac{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}}{(e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x})^2}dx = 2\sqrt{2}-\frac{8}{\pi}+\frac{2\sqrt{2}}{\pi}l\frac{\sqrt{2}+1}{\sqrt{2}-1}$ V. T. 97, N. 9.

3) $\int l(1+x^2)\frac{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}}{(e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x})^2}dx = \frac{\pi-2}{\pi}$ V. T. 97, N. 8.

4) $\int l(1+x^2)\frac{e^{\pi x}+e^{-\pi x}}{(e^{\pi x}-e^{-\pi x})^2}dx = \frac{2l2-1}{2\pi}$ V. T. 97, N. 7.

5) $\int l(1+x^2)\frac{dx}{(e^{qx}-e^{-qx})^2} = \frac{1}{2q}\left\{l\frac{q}{\pi}+\frac{\pi}{2q}-Z'\left(\frac{\pi+q}{\pi}\right)\right\}$ V. T. 97, N. 15.

6) $\int l\left(\frac{9}{4}+x^2\right)\frac{e^{\frac{2}{3}\pi x}-e^{-\frac{2}{3}\pi x}}{e^{\pi x}-e^{-\pi x}}dx = 2\,Sin\frac{\pi}{3}\,.\,l\left(\frac{1}{2}\,Cot\frac{\pi}{12}\right)$ (IV, 371).

7) $\int l(q^2+x^2)\frac{e^{\frac{b\pi x}{a}}+e^{-\frac{b\pi x}{a}}}{e^{\pi x}+e^{-\pi x}}dx = Sec\frac{b\pi}{2a}.l2a+2\sum_1^a(-1)^{n-1}Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\}.l\frac{\Gamma\left(\frac{q+a+n-\frac{1}{2}}{2a}\right)}{\Gamma\left(\frac{q+n-\frac{1}{2}}{2a}\right)}$

$[a+b$ impair$]$, $= Sec\frac{b\pi}{2a}.la+2\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\}.l\frac{\Gamma\left(\frac{q+a-n+\frac{1}{2}}{a}\right)}{\Gamma\left(\frac{q+n-\frac{1}{2}}{a}\right)}$

$[a+b$ pair$]$ (IV, 371).

8) $\int l(q^2+x^2)\frac{e^{\frac{b\pi x}{a}}-e^{-\frac{b\pi x}{a}}}{e^{\pi x}-e^{-\pi x}}dx = Tg\frac{b\pi}{2a}.l2a+2\sum_1^{a-1}(-1)^{n-1}Sin\frac{nb\pi}{a}.l\frac{\Gamma\left(\frac{q+a+n}{2a}\right)}{\Gamma\left(\frac{q+n}{2a}\right)}$

$[a+b$ impair$]$, $= Tg\frac{b\pi}{2a}.la+2\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Sin\frac{nb\pi}{a}.l\frac{\Gamma\left(\frac{q+a-n}{a}\right)}{\Gamma\left(\frac{q+n}{a}\right)}$ $[a+b$ pair$]$ (IV, 371).

9) $\int l\left(\frac{1}{4}a^2+x^2\right)\frac{e^{\frac{b\pi x}{a}}+e^{-\frac{b\pi x}{a}}}{e^{\pi x}+e^{-\pi x}}dx = \sum_1^a(-1)^{n-1}Cos\left\{\left(n-\frac{1}{2}\right)\frac{b\pi}{a}\right\}.l\left\{\left(\frac{a+1}{2}-n\right)Cot\left(\frac{\pi}{4}-\right.\right.$

$\left.\left.-\frac{2n-1}{4a}\pi\right)\right\}$ $[a+b$ impair$]$ (IV, 371).

10) $\int l\left(\frac{1}{4}a^2+x^2\right)\frac{e^{\frac{b\pi x}{a}}-e^{-\frac{b\pi x}{a}}}{e^{\pi x}-e^{-\pi x}}dx = \sum_1^{a-1}(-1)^{n-1}Sin\frac{nb\pi}{a}.l\left\{\left(\frac{1}{2}a-n\right)Cot\left(\frac{\pi}{4}-\frac{n\pi}{2a}\right)\right\}$

$[a+b$ impair$]$ (IV, 371).

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11) $\int l(q^2+x^2)\frac{dx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} = 2\,l\,\frac{2\,\Gamma\left(\frac{q+3}{4}\right)}{\Gamma\left(\frac{q+1}{4}\right)}$ (IV, 372*).

12) $\int l(q^2+x^2)\frac{e^{\frac{2}{3}\pi x}-e^{-\frac{2}{3}\pi x}}{e^{\pi x}-e^{-\pi x}}\,dx = 2\,Sin\,\frac{\pi}{3}.\,l\,\frac{6\,\Gamma\left(\frac{q+4}{6}\right)\Gamma\left(\frac{q+5}{6}\right)}{\Gamma\left(\frac{q+1}{6}\right)\Gamma\left(\frac{q+2}{6}\right)}$ (IV, 372).

13) $\int l(q^2-x^2)\frac{dx}{(e^{\pi x}-e^{-\pi x})^2} = \frac{1}{4\pi q^2}\sum_0^\infty(-1)^{n-1}\frac{B_{2n+1}}{n+1}\frac{1}{q^{2n}}$ V. T. 97, N. 21.

F. Expon. polynôme en dén.; Logar. en num. de fonct. Expon. TABLE 259. Lim. 0 et ∞.

1) $\int l(1+e^{-x})\frac{dx}{1+e^{-x}} = \frac{1}{12}\pi^2-\frac{1}{2}(l2)^2$ V. T. 114, N. 4.

2) $\int l(1+e^{-x})\frac{1+e^{-2ax}}{1+e^x}\,dx = 2\,l2.\sum_0^{a-1}\frac{1}{2n+1}-\sum_1^{2a}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 8.

3) $\int l(1+e^{-x})\frac{1-e^{-(2a+1)x}}{1+e^x}\,dx = 2\,l2.\sum_0^{a}\frac{1}{2n+1}-\sum_1^{2a+1}\frac{1}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 7.

4) $\int l(1+e^{-x})\frac{1-e^{-2ax}}{1-e^x}\,dx = -2\,l2.\sum_1^{a-1}\frac{1}{2n+1}+\sum_1^{2a}\frac{(-1)^{n-1}}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 9.

5) $\int l(1+e^{-x})\frac{1-e^{-(2a+1)x}}{1-e^x}\,dx = -2\,l2.\sum_0^{a}\frac{1}{2n+1}+\sum_1^{2a+1}\frac{(-1)^{n-1}}{n}\sum_1^n\frac{(-1)^{m-1}}{m}$ V. T. 114, N. 10.

6) $\int l(1-e^{-x})\frac{1-e^{-ax}}{1-e^x}\,dx = \sum_1^a\frac{1}{n}\sum_1^n\frac{1}{m}$ V. T. 114, N. 16.

7) $\int l(1-e^{-x})\frac{1-(-1)^a e^{-ax}}{1+e^x}\,dx = -\sum_1^a\frac{(-1)^{n-1}}{n}\sum_1^n\frac{1}{m}$ V. T. 114, N. 15.

8) $\int l(1+pe^{-x})\frac{dx}{e^x+pe^{-x}} = \frac{1}{2\sqrt{p}}\,Arctg\,(\sqrt{p})\,.\,l\,(1+p)$ V. T. 114, N. 21.

9) $\int l(p+e^{-x})\frac{dx}{e^{-x}+pe^x} = \frac{1}{2\sqrt{p}}\,Arccot\,(\sqrt{p})\,.\,l\,\{(1+p)p\}$ V. T. 114, N. 20.

10) $\int l(Cos^2\lambda-e^{-2x}Sin^2\lambda)\frac{dx}{e^x-e^{-x}} = -\lambda^2$ V. T. 114, N. 27.

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11) $\int l(e^{\frac{1}{2}x}+e^{-\frac{1}{2}x})\frac{dx}{e^x+e^{-x}}=\frac{\pi}{8}l2+\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 4.

12) $\int l(1+e^{-x})\frac{e^{-x}\,dx}{(1+e^{-x})^{q+1}}=-\frac{1}{q.2^q}l2+\frac{1}{q^2.2^q}(2^q-1)$ V. T. 114, N. 6.

13) $\int l(1+e^{-2x})\frac{dx}{(pe^x+qe^{-x})^2}=\frac{1}{p(p-q)}l\frac{p+q}{q}+\frac{2}{q^2-p^2}l2$ V. T. 114, N. 5.

14) $\int l(p+qe^{-2x})\frac{dx}{(e^x+e^{-x})^2}=\frac{1}{p-q}\left\{\frac{1}{2}(p+q)l(p+q)-qlq-pl2\right\}$ V. T. 114, N. 22.

15) $\int l(1+e^{-x})\frac{e^x+e^{-x}}{e^x+q^2e^{-x}}\;\frac{dx}{e^{-x}+q^2e^x}=\frac{\pi}{2q(1+q^2)}\left\{\frac{\pi}{2}l(1+q^2)-2\,Arctg\,q.lq\right\}$ V. T. 114, N. 11.

16) $\int l\frac{e^x+e^{-x}}{e^x-e^{-x}}\;\frac{dx}{e^x+e^{-x}}=\frac{\pi}{4}l2$ V. T. 115, N. 20.

1) $\int_{-\infty}^{\infty}lx\frac{dx}{e^x+e^{-x}}=\frac{\pi}{2}l\left\{\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right\}$ V. T. 148, N. 1.

2) $\int_{-\infty}^{\infty}lx\frac{e^{ax}-e^{-ax}}{e^{bx}-e^{-bx}}dx=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l2\pi+\frac{\pi}{b}\sum_1^{b-1}(-1)^{n-1}Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b+n}{2b}\right)}{\Gamma\left(\frac{n}{2b}\right)}$ $[a+b$ impair$]$, $=$

$=\frac{\pi}{2b}Tg\frac{a\pi}{2b}.l\pi+\frac{\pi}{b}\sum_1^{\frac{1}{2}(b-1)}(-1)^{n-1}Sin\frac{na\pi}{b}.l\frac{\Gamma\left(\frac{b-n}{b}\right)}{\Gamma\left(\frac{n}{b}\right)}$ $[a+b$ pair$]$ V. T. 148, N. 3.

3) $\int_{-\infty}^{\infty}lx\frac{dx}{e^x+e^{-x}+1}=\frac{\pi}{\sqrt{3}}l\left\{\frac{\Gamma(\frac{2}{3})}{\Gamma(\frac{1}{3})}\sqrt[3]{2\pi}\right\}$ V. T. 148, N. 2.

4) $\int_{-\infty}^{\infty}lx\frac{e^{(a-1)x}\,dx}{1+e^{2x}+e^{4x}+\ldots+e^{2(a-1)x}}=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l2\pi+\frac{\pi}{a}\sum_1^{a-1}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a+n}{2a}\right)}{\Gamma\left(\frac{n}{2a}\right)}$

$[a$ pair$]$, $=\frac{\pi}{2a}Tg\frac{\pi}{2a}.l\pi+\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}(-1)^{n-1}Sin\frac{n\pi}{a}.l\frac{\Gamma\left(\frac{a-n}{a}\right)}{\Gamma\left(\frac{n}{a}\right)}$ $[a$ impair$]$ V. T. 148, N. 4.

5) $\int_1^\infty e^{-qx}\, lx\, dx = -\frac{1}{q} Ei(-q)$ V. T. 104, N. 10.

6) $\int_1^\infty lx \frac{e^{qx}-e^{-qx}}{(e^{qx}+e^{-qx})^2} dx = \frac{1}{q\pi} \sum_0^\infty \frac{(-1)^n}{2n+1} l\left\{1+\left(\frac{2n+1}{2q}\pi\right)^2\right\}$ V. T. 104, N. 13.

7) $\int_1^\infty lx \frac{e^{qx}+e^{-qx}}{(e^{qx}-e^{-qx})^2} dx = \frac{1}{2q^2} + \frac{1}{q\pi} \sum_1^\infty \frac{(-1)^n}{n} Arctg \frac{n\pi}{q}$ V. T. 104, N. 14.

8) $\int_0^1 e^{\sqrt{x}-1}\, l(1-\sqrt{x})\, dx = 2\frac{1-e}{e}$ (VIII, 592).

9) $\int_0^\infty \frac{e^{-x}}{lx} dx = 0$ V. T. 31, N. 2.

10) $\int_0^{2\pi} l(1-pe^{\pm xi})\, dx = 0$ (IV, 373).

11) $\int_0^{2\pi} e^{-axi}\, l(r+pe^{xi})\, dx = 2\pi \frac{p^a}{1^{a/1}} lr$ (VIII, 273).

12) $\int_{-\pi}^{\pi} e^{-qxi}\, l(1-pe^{xi})\, dx = -\frac{2\pi}{q} p^q\ [p^2<1]$ (IV, 373).

13) $\int_{-\pi}^{\pi} e^{qxi}\, l(1-pe^{xi})\, dx = 0\ [p^2<1]$ (IV, 373).

F. Exp. $e^{\pm ax}$; Circ. Dir. ent. à un facteur. TABLE 261. Lim. 0 et ∞.

1) $\int e^{-px}\, Sin\, qx\, dx = \frac{q}{p^2+q^2}$ (VIII, 202).

2) $\int e^{-px}\, Cos\, qx\, dx = \frac{p}{p^2+q^2}$ (VIII, 202).

3) $\int e^{-px}\, Sin(qx+\lambda)\, dx = \frac{1}{p^2+q^2}(q\, Cos\,\lambda + p\, Sin\,\lambda)$ (VIII, 202*).

4) $\int e^{-px}\, Cos(qx+\lambda)\, dx = \frac{1}{p^2+q^2}(p\, Cos\,\lambda - q\, Sin\,\lambda)$ (VIII, 202*).

5) $\int e^{-px}\, Sin\, qix\, dx = \frac{qi}{p^2-q^2}$ (VIII, 202*).

6) $\int e^{-x\, Cos\,\lambda}\, Sin(\lambda - x\, Sin\,\lambda)\, dx = 0$ (VIII, 629).

7) $\int e^{-x\, Cos\,\lambda}\, Cos(\lambda - x\, Sin\,\lambda)\, dx = 1$ (VIII, 629).

8) $\int e^{-px}\, Cot\, qx\, dx = 4q \sum_1^\infty \frac{n^2}{p^2+4q^2n^2}$ (IV, 374).

9) $\int e^{-px}\, Sin(2q\sqrt{x})\, dx = \frac{q}{p} e^{-\frac{q^2}{p}} \sqrt{\frac{\pi}{p}}$ (VIII, 519).

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10) $\int e^{-px}\, Tg(q\sqrt{x})\, dx = \frac{2q}{p}\sqrt{\frac{\pi}{p}} \cdot \sum_1^\infty (-1)^n n e^{-\frac{n^2 q^2}{p}}$ V. T. 362, N. 15.

11) $\int e^{-px}\, Cot(q\sqrt{x})\, dx = -\frac{2q}{p}\sqrt{\frac{\pi}{p}} \cdot \sum_1^\infty n e^{-\frac{n^2 q^2}{p}}$ V. T. 362, N. 16.

12) $\int e^{-px}\, Cosec(2q\sqrt{x})\, dx = -\frac{2q}{p}\sqrt{\frac{\pi}{p}} \cdot \sum_1^\infty (2n-1) e^{-(2n-1)^2 \frac{q^2}{p}}$ V. T. 362, N. 17.

F. Exp. $e^{\pm a x}$;
· Circ. Dir. ent. d'autre forme. TABLE 262. Lim. 0 et ∞.

1) $\int e^{-px}\, Sin^{2a} x\, dx = \frac{1}{p} \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}$ (VIII, 249).

2) $\int e^{-px}\, Sin^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}$ (VIII, 249).

3) $\int e^{-px}\, Cos^{2a} x\, dx = \frac{1}{p} \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}} \left\{1 + \frac{p^2}{1.2} + \frac{p^2(p^2+2^2)}{1^{4/1}} + \ldots + \right.$
$\left. + \frac{p^2(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a-2)^2\}}{1^{2a/1}}\right\}$ (VIII, 252).

4) $\int e^{-px}\, Cos^{2a+1} x\, dx = p \frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}} \left\{1 + \frac{p^2+1^2}{1.2.3} + \right.$
$\left. + \frac{(p^2+1^2)(p^2+3^2)}{1^{5/1}} + \ldots + \frac{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a-1)^2\}}{1^{2a+1/1}}\right\}$ (VIII, 252).

5) $\int e^{-px}\, Sin\, qx . Sin\, rx\, dx = \frac{2pqr}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

6) $\int e^{-px}\, Sin\, qx . Cos\, rx\, dx = q \frac{p^2+q^2-r^2}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

7) $\int e^{-px}\, Cos\, qx . Cos\, rx\, dx = p \frac{p^2+q^2+r^2}{\{p^2+(q-r)^2\}\{p^2+(q+r)^2\}}$ (VIII, 332).

8) $\int e^{-px}\, Sin^{2a} x . Sin\, qx\, dx = \frac{(-1)^a}{(2a+1)2^{2a+2}} \left\{ \frac{1}{\binom{\frac{1}{2}(q-1)+a-\frac{1}{2}pi}{2a+1}} + \frac{1}{\binom{\frac{1}{2}(q-1)+a+\frac{1}{2}pi}{2a+1}} \right\}$

9) $\int e^{-px}\, Sin^{2a} x . Cos\, qx\, dx = \frac{(-1)^{a-1} i}{(2a+1)2^{2a+2}} \left\{ \frac{1}{\binom{\frac{1}{2}(q-1)+a-\frac{1}{2}pi}{2a+1}} - \frac{1}{\binom{\frac{1}{2}(q-1)+a+\frac{1}{2}pi}{2a+1}} \right\}$

10) $\int e^{-px} Sin^{2a-1} x . Sin\, qx\, dx = \frac{(-1)^a i}{a . 2^{2a+2}} \left\{ \frac{1}{\binom{\frac{1}{2}(q-1)+a-\frac{1}{2}pi}{2a}} - \frac{1}{\binom{\frac{1}{2}(q-1)+a+\frac{1}{2}pi}{2a}} \right\}$

11) $\int e^{-px} Sin^{2a-1} x . Cos\, qx\, dx = \frac{(-1)^a}{a . 2^{2a+2}} \left\{ \frac{1}{\binom{\frac{1}{2}(q-1)+a-\frac{1}{2}pi}{2a}} + \frac{1}{\binom{\frac{1}{2}(q-1)+a+\frac{1}{2}pi}{2a}} \right\}$

12) $\int e^{-px} (1-e^x)^{a-1} Sin\, qx\, dx = \frac{(-1)^a i}{2a} \left\{ \frac{1}{\binom{p-qi}{a}} - \frac{1}{\binom{p+qi}{a}} \right\}$

13) $\int e^{-px} (1-e^x)^{a-1} Cos\, qx\, dx = \frac{(-1)^{a-1}}{2a} \left\{ \frac{1}{\binom{p-qi}{a}} + \frac{1}{\binom{p+qi}{a}} \right\}$

Sur 8) à 13) voyez Raabe, Dschr. Zür. 8, 1.

14) $\int e^{-px} Cos\, x\, dx \sqrt{Cos\, 2qx} = \sum_0^\infty \frac{(-2q)^n}{n^{n-1/1}} \frac{Cos(n\, Arccot\, p)}{\sqrt{1+q^2}^n}$ (IV, 375).

15) $\int e^{-2px} Sin(q^2 x^2)\, dx = \frac{1}{4q} \left\{ Cos\left(\frac{p^2}{q^2}\right) + Sin\left(\frac{p^2}{q^2}\right) \right\} \sqrt{2\pi} - \frac{p}{q^2} \left\{ Cos\left(\frac{p^2}{q^2}\right) . \sum_0^\infty (-1)^n \right.$
$\left. \frac{1}{(4n+1) 1^{2n/1}} \left(\frac{p}{q}\right)^{4n} + Sin\left(\frac{p^2}{q^2}\right) . \sum_1^\infty (-1)^n \frac{1}{(4n-1) 1^{2n-1/1}} \left(\frac{p}{q}\right)^{4n-2} \right\}$ (IV, 376).

16) $\int e^{-2px} Cos(q^2 x^2)\, dx = \frac{1}{4q} \left\{ Cos\left(\frac{p^2}{q^2}\right) - Sin\left(\frac{p^2}{q^2}\right) \right\} \sqrt{2\pi} - \frac{p}{q^2} \left\{ Sin\left(\frac{p^2}{q^2}\right) . \sum_0^\infty (-1)^n \right.$
$\left. \frac{1}{(4n+1) 1^{2n/1}} \left(\frac{p}{q}\right)^{4n} - Cos\left(\frac{p^2}{q^2}\right) . \sum_1^\infty (-1)^n \frac{1}{(4n-1) 1^{2n-1/1}} \left(\frac{p}{q}\right)^{4n-2} \right\}$ (IV, 376).

F. Exp. $e^{\pm ax^2}$;
Circ. Dir. ent. TABLE 263. Lim. 0 et ∞.

1) $\int e^{-px^2} Sin\, qx\, dx = \sum_0^\infty (-1)^n \frac{1}{(n+2)^{n+1/1}} \frac{q^{2n+1}}{p^{n+1}}$ (VIII, 490*).

2) $\int e^{-px^2} Cos\, qx\, dx = \frac{1}{2} e^{-\frac{q^2}{4p}} \sqrt{\frac{\pi}{p}}$ (VIII, 518).

3) $\int e^{x^2 i} Cos\, qx\, dx = \frac{1+i}{2} e^{-\frac{1}{4}q^2 i} \sqrt{\frac{\pi}{2}}$ V. T. 70, N. 13, 14.

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4) $\int e^{-p x^2} Sin\, q x . Sin\, r x\, d x = \frac{1}{4}\sqrt{\frac{\pi}{p}} . \left\{ e^{-\frac{(q-r)^2}{4p}} - e^{-\frac{(q+r)^2}{4p}} \right\}$ V. T. 263, N. 2.

5) $\int e^{-p x^2} Cos\, q x . Cos\, r x\, d x = \frac{1}{4}\sqrt{\frac{\pi}{p}} . \left\{ e^{-\frac{(q-r)^2}{4p}} + e^{-\frac{(q+r)^2}{4p}} \right\}$ V. T. 263, N. 2.

6) $\int e^{-p x^2} Sin^2\, q x\, d x = \frac{1}{2}\left(1 - e^{-\frac{q^2}{p}}\right)\sqrt{\frac{\pi}{p}}$ V. T. 26, N. 2 et T. 263, N. 2.

7) $\int e^{-x^2}\, Cot\, q x\, d x = \sqrt{\pi} . \sum_1^\infty e^{-(n q)^2}$ (IV, 377).

8) $\int e^{-p x^2} Sin\,(q x^2)\, d x = \frac{\sqrt{\pi}}{2 \sqrt[4]{p^2+q^2}}\, Sin\left(\frac{1}{2} Arctg \frac{q}{p}\right)$ (VIII, 529*).

9) $\int e^{-p x^2}\, Cos\,(q x^2)\, d x = \frac{\sqrt{\pi}}{2 \sqrt[4]{p^2+q^2}}\, Cos\left(\frac{1}{2} Arctg \frac{q}{p}\right)$ (VIII, 529*).

10) $\int e^{-p x^2} Sin\,(q x^2) . Cos\, r x\, d x = \frac{1}{2}\sqrt{\frac{\pi}{p^2+q^2}} . e^{-a b}\, (b\, Sin\, a c + c\, Cos\, a c)$ (IV, 377).

11) $\int e^{-p x^2} Cos\,(q x^2) . Cos\, r x\, d x = \frac{1}{2}\sqrt{\frac{\pi}{p^2+q^2}} . e^{-a b}\, (b\, Cos\, a c + c\, Sin\, a c)$ (IV, 377).

Dans 10) et 11) on a $a = \frac{r^2}{4(p^2+q^2)}$, $2 b^2 = p + \sqrt{p^2+q^2}$, $2 c^2 = -p + \sqrt{p^2+q^2}$.

12) $\int e^{-x^2}\, Sin\left(\frac{2p^2}{x^2}\right) d x = \frac{1}{2} e^{-2p}\, Sin\,(2p) . \sqrt{\pi}$ (IV, 377).

13) $\int e^{-x^2}\, Cos\left(\frac{2p^2}{x^2}\right) d x = \frac{1}{2} e^{-2p}\, Cos\,(2p) . \sqrt{\pi}$ (IV, 377).

F. Exp. en dén. binôme à Exp. $e^{\pm a x}$; Circ. Dir. en num. TABLE 264. Lim. 0 et ∞.

1) $\int \frac{Sin\, p x}{e^{q x}+1}\, d x = \frac{1}{2p} - \frac{1}{q}\, \frac{\pi}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (VIII, 557*).

2) $\int \frac{Sin\, p x}{e^{q x}-1}\, d x = \frac{\pi}{2q}\, \frac{e^{\frac{2p\pi}{q}}+1}{e^{\frac{2p\pi}{q}}-1} - \frac{1}{2p}$ (VIII, 557*).

3) $\int \frac{Sin\, p x i}{i}\, \frac{d x}{e^{q x}+1} = \frac{\pi}{2q}\, Cosec \frac{p\pi}{q} - \frac{1}{2p}$ (VIII, 557*).

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4) $\int \frac{Sin\, p x i}{i} \frac{dx}{e^{qx}-1} = \frac{1}{2p} - \frac{\pi}{2q} Cot \frac{p\pi}{q}$ (VIII, 556*).

5) $\int \frac{Sin\, p x}{1-e^{-x}} dx = -\sum_0^\infty \frac{p}{n^2+p^2}$ Del Grosso, Mem. Nap. 1, 37.

6) $\int \frac{Sin\, p x}{e^{qx}-e^{-qx}} dx = \frac{\pi}{4q} \frac{e^{\frac{p\pi}{q}}-1}{e^{\frac{p\pi}{q}}+1}$ (VIII, 638*).

7) $\int \frac{Sin\, p x i}{i} \frac{dx}{e^{qx}-e^{-qx}} = \frac{\pi}{4q} Tg \frac{p\pi}{2q}$ (VIII, 557*).

8) $\int \frac{Sin\, p x}{e^{ax}-e^{(a-1)x}} dx = \frac{1}{2}\pi - \frac{1}{2p} + \frac{\pi}{e^{2p\pi}-1} - \sum_0^a \frac{p}{p^2+(n+1)^2}$ (IV, 379).

9) $\int \frac{Sin\, p x}{e^{\pi x}-e^{-\pi x}} e^{qx} dx = \sum_1^\infty \frac{p}{p^2+\{(2n-1)\pi-q\}^2} [q<\pi]$ (IV, 379).

10) $\int \frac{Sin\, p x}{e^{2\pi x}-1} e^{qx} dx = \sum_1^\infty \frac{p}{(2n\pi-q)^2+p^2}$ (IV, 380).

11) $\int \frac{Sin\, p x}{e^{2\pi x}-1} e^{-qx} dx = \sum_1^\infty \frac{p}{p^2+(q+2n\pi)^2}$ (IV, 380).

12) $\int \frac{Sin\, p x}{1-e^{-x}} e^{-qx} dx = \Phi - \frac{1}{2p} Sin\,\Phi + \sum_1^\infty (-1)^n \frac{Sin^{2n}\Phi \,.\, Sin\, 2n\Phi}{2np^{2n}} B_{2n-1}$, où $Cot\,\Phi = \frac{q-1}{p}$ (IV, 380*).

13) $\int \frac{Cos\, p x}{1-e^{-x}} dx = \sum_0^\infty \frac{n}{n^2+p^2}$ Del Grosso, Mem. Nap. 1, 27.

14) $\int \frac{Cos\, p x}{e^{qx}+e^{-qx}} dx = \frac{\pi}{2q} \frac{1}{e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}}$ (VIII, 638*).

15) $\int \frac{Cos\, p x i}{e^{qx}+e^{-qx}} dx = \frac{\pi}{4q} Sec \frac{p\pi}{2q}$ (VIII, 557*).

16) $\int \frac{Cos\, p x}{(e^{qx}+1)^2} e^{qx} dx = \frac{1}{q^2} \frac{p\pi}{e^{\frac{p\pi}{q}}-e^{-\frac{p\pi}{q}}}$ V. T. 264, N. 1.

17) $\int \frac{Sin^2 p x}{e^{qx}+e^{-qx}} dx = \frac{\pi}{8q} \frac{\left(e^{\frac{p\pi}{q}}-1\right)^2}{e^{\frac{2p\pi}{q}}+1}$ V. T. 27, N. 2 et T. 264, N. 14.

18) $\int \frac{Cos^2 px}{e^{qx}+e^{-qx}} dx = \frac{\pi}{8q} \frac{\left(e^{\frac{p\pi}{q}}+1\right)^2}{e^{\frac{2p\pi}{q}}+1}$ V. T. 27, N. 2 et T. 264, N. 14.

19) $\int \frac{Sin px . Sin rx}{e^{qx}+e^{-qx}} dx = \frac{\pi}{4q} \frac{\left(e^{\frac{p\pi}{2q}}-e^{-\frac{p\pi}{2q}}\right)\left(e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}\right)}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 14.

20) $\int \frac{Sin px . Cos rx}{e^{qx}-e^{-qx}} dx = \frac{\pi}{4q} \frac{e^{\frac{r\pi}{q}}-e^{-\frac{r\pi}{q}}}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 6.

21) $\int \frac{Cos px . Cos rx}{e^{qx}+e^{-qx}} dx = \pi \frac{e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}}{4q} \frac{e^{\frac{r\pi}{2q}}+e^{-\frac{r\pi}{2q}}}{e^{\frac{p\pi}{q}}+e^{-\frac{p\pi}{q}}+e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}}$ V. T. 264, N. 14.

22) $\int Sin\left(p\frac{e^x+e^{-x}}{2}\right) . Sin\left(p\frac{e^x-e^{-x}}{2}\right) \frac{dx}{e^x-e^{-x}} = \frac{\pi}{4} Sin p$ Cauchy, Ann. Math. 17, 84.

F. Exp. en num. et en dén. bin. à Exp. $e^{\pm ax}$; Circ. Dir. en num. TABLE 265. Lim. 0 et ∞.

1) $\int \frac{e^{qx}-e^{-qx}}{e^{qx}+e^{-qx}} Sin rx dx = \frac{\pi}{q} \frac{1}{e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}}$ (VIII, 638*).

2) $\int \frac{e^{px}-e^{-px}}{e^{qx}+e^{-qx}} Sin rx dx = \frac{\pi}{q} \frac{e^{\frac{r\pi}{2q}}-e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}} Sin\frac{p\pi}{2q}$ $[p<2q]$ (VIII, 638*).

3) $\int \frac{e^{qx}+e^{-qx}}{e^{qx}-e^{-qx}} Sin rx dx = \frac{\pi}{2q} \frac{e^{\frac{r\pi}{q}}+1}{e^{\frac{r\pi}{q}}-1}$ (VIII, 638*).

4) $\int \frac{e^{px}+e^{-px}}{e^{qx}-e^{-qx}} Sin rx dx = \frac{\pi}{2q} \frac{e^{\frac{r\pi}{q}}-e^{-\frac{r\pi}{q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}}$ $[p^2 \leqq q^2]$ (VIII, 638*).

5) $\int \frac{e^{px}+e^{-px}}{e^{qx}-1} Sin rx dx = \frac{\pi}{q} \frac{e^{\frac{2r\pi}{q}}-e^{-\frac{2r\pi}{q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}-2 Cos\frac{2p\pi}{q}} - \frac{r}{r^2+p^2}$ $[p<q]$ (VIII, 638*).

6) $\int \frac{e^{px}+e^{-px}}{e^{qx}+e^{-qx}} Cos rx dx = \frac{\pi}{q} \frac{e^{\frac{r\pi}{2q}}+e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos\frac{p\pi}{q}} Cos\frac{p\pi}{2q}$ $[p<2q]$ (VIII, 638*).

7) $\int \frac{e^{px}-e^{-px}}{e^{qx}-e^{-qx}} Cos\, rx\, dx = \frac{\pi}{q} \frac{Sin \frac{p\pi}{q}}{e^{\frac{r\pi}{q}}+e^{-\frac{r\pi}{q}}+2 Cos \frac{p\pi}{q}}$ $[p^2 \leqq q^2]$ (VIII, 637*).

8) $\int \frac{e^{px}-e^{-px}}{e^{qx}-1} Cos\, rx\, dx = \frac{\pi}{q} \frac{Sin \frac{2p\pi}{q}}{e^{\frac{2r\pi}{q}}+e^{-\frac{2r\pi}{q}}-2 Cos \frac{2p\pi}{q}} - \frac{r}{p^2+r^2}$ (VIII, 638*).

F. Exp. en num. e^{-x^2}; Circ. Dir. en dén. trinôme. TABLE 266. Lim. 0 et ∞.

1) $\int \frac{e^{-px^2}}{1-2r Cos x+r^2} dx = \frac{1}{1-r^2} \left\{\frac{1}{2}+\sum_1^\infty r^n e^{-\frac{n^2}{4p}}\right\} \sqrt{\frac{\pi}{p}}$ (IV, 380).

2) $\int \frac{Cos(x\sqrt{lq})}{1-2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2(q-1)\sqrt[4]{q}} \sum_1^\infty q^{-n^2}$ (IV, 380).

3) $\int \frac{Cos(x\sqrt{lq})}{1+2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2(q+1)\sqrt[4]{q}} \sum_1^\infty (-1)^{n-1} q^{-n^2}$ (IV, 380).

4) $\int \frac{q Cos(x\sqrt{lq}) - Cos(3x\sqrt{lq})}{1-2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{1}{2q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \sum_0^\infty q^{-n^2} = \frac{1}{4q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \left\{1+\sqrt{\frac{2}{\pi}F'(\lambda)}\right\}$
(IV, 381).

5) $\int \frac{q Cos(x\sqrt{lq}) + Cos(3x\sqrt{lq})}{1+2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{1}{2q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \sum_0^\infty (-1)^n q^{-n^2} = \frac{1}{4q} \frac{\sqrt{\pi}}{\sqrt[4]{q}} \left\{1+\sqrt{\frac{2}{\pi}\sqrt{1-\lambda^2}.F'(\lambda)}\right\}$
(IV, 381).

6) $\int \frac{q - Cos(2x\sqrt{lq})}{1-2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sum_0^\infty q^{-\left(\frac{2n+1}{2}\right)^2} = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sqrt{\frac{p}{2\pi}F'(\lambda)}$ (IV, 381).

Dans 4) à 6) on a $lq.F'(\lambda) = \pi F'\{\sqrt{1-\lambda^2}\}$.

7) $\int \frac{q + Cos(2x\sqrt{lq})}{1+2q Cos(2x\sqrt{lq})+q^2} e^{-x^2} dx = \frac{\sqrt{\pi}}{2\sqrt[4]{q^3}} \sum_0^\infty (-1)^n q^{-\left(\frac{2n+1}{2}\right)^2}$ (IV, 381).

8) $\int \frac{Cos(2ax\sqrt{lq}) - r Cos\{2(a+1)x\sqrt{lq}\}}{1-2r Cos(2x\sqrt{lq})+r^2} e^{-x^2} dx = \frac{1}{2} q^{-a^2} \sqrt{\pi}. \sum_0^\infty r^n q^{2an-n^2}$ $[r^2 < 1]$
(IV, 381).

9) $\int \frac{Cos\{2(a-1)x\sqrt{lq}\} - r Cos\{2(a+1)x\sqrt{lq}\}}{1-2r Cos(4x\sqrt{lq})+r^2} e^{-x^2} dx = \frac{1}{2} q^{-a^2} \sqrt{\pi}. \sum_0^\infty r^n q^{2a(2n+1)-(2n+1)^2}$
$[r^2 < 1]$ (IV, 381).

1) $\int \frac{e^x - e^{-x}}{e^x + e^{-x} + 2\,Cos\,p}\,Sin\,q\,x\,d\,x = \pi\,\frac{e^{p\,q} + e^{-p\,q}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 382).

2) $\int \frac{e^{r\,x} - e^{-r\,x}}{e^x + e^{-x} + 2\,Cos\,p}\,Sin\,q\,x\,d\,x = \frac{\pi}{Sin\,p}\,\frac{\{e^{q(\pi-p)} - e^{-q(\pi+p)}\}\,Sin\,\{r(\pi-p)\} - \{e^{q(\pi-p)} - e^{q(p-\pi)}\}\,Sin\,\{r(\pi+p)\}}{e^{2\,q\,\pi} - 2\,Cos\,2\,r\,\pi + e^{-2\,q\,\pi}}$ Cauchy, Ann. Math. 17, 84.

3) $\int \frac{Cos\,q\,x}{e^x + e^{-x} + 2\,Cos\,p}\,d\,x = \frac{\pi}{2}\,Cosec\,p\,\frac{e^{p\,q} - e^{-p\,q}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 381).

4) $\int \frac{Cos\,q\,x}{e^x + e^{-x} + e^p + e^{-p}}\,d\,x = \frac{2\,\pi}{e^p - e^{-p}}\,\frac{Sin\,p\,q}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 381).

5) $\int \frac{e^x + e^{-x}}{e^x + e^{-x} + 2\,Cos\,p}\,Cos\,q\,x\,d\,x = -\,\pi\,Cot\,p\,\frac{e^{p\,q} - e^{-p\,q}}{e^{q\pi} - e^{-q\pi}}\,[p \leqq \pi]$ (IV, 382).

6) $\int \frac{e^{r\,x} + e^{-r\,x}}{e^x + e^{-x} + 2\,Cos\,p}\,Cos\,q\,x\,d\,x = \frac{\pi}{Sin\,p}\,\frac{\{e^{q(\pi+p)} + e^{-q(\pi+p)}\}\,Cos\,\{r(\pi-p)\} - \{e^{q(\pi-p)} + e^{q(p-\pi)}\}\,Cos\,\{r(\pi+p)\}}{e^{2\,q\,\pi} - 2\,Cos\,2\,r\,\pi + e^{-2\,q\,\pi}}$ Cauchy, Ann. Math. 17, 84.

7) $\int \frac{e^{p\,x} - e^{-p\,x}}{e^{2\,p\,x} + e^{-2\,p\,x} + 2\,Cos\,2\,q\,x}\,Sin\,q\,x\,d\,x = \frac{\pi}{4}\,\frac{q}{p^2 + q^2}$ (VIII, 336).

8) $\int \frac{e^{p\,x} + e^{-p\,x}}{e^{2\,p\,x} + e^{-2\,p\,x} + 2\,Cos\,2\,q\,x}\,Cos\,q\,x\,d\,x = \frac{\pi}{4}\,\frac{p}{p^2 + q^2}$ (VIII, 335).

9) $\int \frac{d\,x}{(e^{p\,x} + e^{-p\,x})\,Cos\,q\,x + i\,(e^{p\,x} - e^{-p\,x})\,Sin\,q\,x} = \frac{\pi}{4\,(p + q\,i)}$ (VIII, 297).

10) $\int \frac{Sin\,(p\,x^2)}{e^{x^2} + e^{-x^2}}\,d\,x = \frac{1}{2}\,\overset{\infty}{\underset{0}{\Sigma}}\,(-1)^n\,\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{\{p^2 + (2\,n+1)^2\}} - (2\,n+1)}{p^2 + (2\,n+1)^2}\right\}}$ (VIII, 488).

11) $\int \frac{Sin\,(p\,x^2)}{e^{x^2} + e^{-x^2} + 1}\,d\,x = \frac{1}{2}\,Cosec\,\frac{\pi}{3}.\overset{\infty}{\underset{1}{\Sigma}}\,(-1)^{n-1}\,Sin\,\frac{n\,\pi}{3}.\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2 + n^2} - n}{p^2 + n^2}\right\}}$ (VIII, 488).

12) $\int \frac{Cos\,(p\,x^2)}{e^{x^2} + e^{-x^2}}\,d\,x = \frac{1}{2}\,\overset{\infty}{\underset{0}{\Sigma}}\,(-1)^n\,\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{\{p^2 + (2\,n+1)^2\}} + (2\,n+1)}{p^2 + (2\,n+1)^2}\right\}}$ (VIII, 488).

13) $\int \frac{Cos\,(p\,x^2)}{e^{x^2} + e^{-x^2} + 1}\,d\,x = \frac{1}{2}\,Cosec\,\frac{\pi}{3}.\overset{\infty}{\underset{1}{\Sigma}}\,(-1)^{n-1}\,Sin\,\frac{n\,\pi}{3}.\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2 + n^2} + n}{p^2 + n^2}\right\}}$ (VIII, 488).

14) $\int \frac{Sin\,2\,a\,x}{(e^{2\pi x} + 2\,e^{\pi x}\,Cos\,2\,\pi\,x + 1)^2}\,\frac{d\,x}{e^{2\pi x} - 1} = \frac{1}{4\,e^{\pi}\,(e^{\pi} + 1)^2\,(e^{\pi} - 1)^2}\left\{\frac{e^{2\pi} - 1}{2\,\pi} - e^{\pi}\right\}$

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15) $\int \frac{Sin\{(2a+1)x\}}{Sin\, x} e^{-2px}\, dx = \frac{1}{2p} + \sum_1^a \frac{p}{n^2+p^2}$ (IV, 382).

16) $\int \frac{Cos\{(2a+1)x\}}{Sin\, x} e^{-px}\, Sin\, x\, dx = \frac{2a+1}{p^2+(2a+1)^2} + 2\sum_0^{a-1} (-1)^n \frac{2n+1}{p^2+(2n+1)^2}$ (IV, 382).

17) $\int \frac{Sin\{(2a+1)x\}}{Sin\, x} e^{-p^2x^2}\, dx = \frac{\sqrt{\pi}}{p} \left\{\frac{1}{2} + \sum_1^a e^{-\left(\frac{n}{p}\right)^2}\right\}$ (IV, 382).

18) $\int \frac{Cos\{(4a+1)x\}}{Cos\, x} e^{-p^2x^2}\, dx = \frac{\sqrt{\pi}}{p} \left\{\frac{1}{2} + \sum_1^{2a} (-1)^n e^{\left(\frac{n}{p}\right)^2}\right\}$ (IV, 382).

19) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{dx}{e^{2\pi x}-1} = \frac{1}{4(1-p)} - \frac{1}{2}\sum_0^\infty \frac{p^n}{nr+q} - \frac{1}{2}\sum_0^\infty \frac{p^n}{1-e^{q+nr}}$ (IV, 382).

20) $\int \frac{e^{sx}-e^{-sx}}{1-2p\, Cos\, rx + p^2} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{-1}{2(1-p^2)} Tg\, \frac{1}{2}s + \frac{2}{1-p^2}\sum_0^\infty \frac{p^n\, Sin\, s}{e^{nr}+2\, Cos\, s + e^{-nr}}$ $[s<\pi]$ (IV, 383).

21) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{1}{4(1-p)} - \frac{1}{2}\sum_0^\infty \frac{p^n}{1+e^{q+nr}}$ (IV, 382).

22) $\int \frac{Sin\, qx - p\, Sin\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{e^{sx}+e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \frac{1}{2(1-p)} - \sum_0^\infty \frac{1+e^{q+nr}\, Cos\, s}{1+2e^{q+nr}\, Cos\, s + e^{2q+2nr}} p^n$ $[s<\pi]$ (IV, 382).

23) $\int \frac{e^{sx}-e^{-sx}}{1-2p\, Cos\, rx + p^2} \frac{Cos\, rx}{e^{\pi x}-e^{-\pi x}}\, dx = \frac{1}{1-p^2}\sum_0^\infty \frac{p^n\, Sin\, s}{e^{(2n+1)r}+2\, Cos\, s + e^{-(2n+1)r}}$ $[s<\pi]$ (IV, 383).

24) $\int \frac{1-p\, Cos\, rx}{1-2p\, Cos\, rx + p^2} \frac{e^{sx}-e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \sum_0^\infty \frac{p^n\, Sin\, s}{e^{nr}+2\, Cos\, s + e^{-nr}}$ $[s<\pi]$ (IV, 383).

25) $\int \frac{Cos\, qx - p\, Cos\{(q-r)x\}}{1-2p\, Cos\, rx + p^2} \frac{e^{sx}-e^{-sx}}{e^{\pi x}-e^{-\pi x}}\, dx = \sum_0^\infty \frac{e^{q+ns}\, p^n\, Sin\, s}{1+2e^{q+nr}\, Cos\, s + e^{2q+2nr}}$ $[s<\pi]$ (IV, 382).

26) $\int \frac{(e^{sx}+e^{-sx})\, Sin\, rx\, .\, Sin\, s - (e^{sx}-e^{-sx})(e^r - Cos\, rx)\, Cos\, s}{e^r - 2\, Cos\, rx + e^{-r}} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{Sin\, s}{2(e^{-r}-1)} + \sum_0^\infty \frac{Sin\, s}{e^{nr}+2\, Cos\, s + e^{-nr}}$ $[s<\pi]$ (IV, 382).

27) $\int \frac{(e^{sx}+e^{-sx})\, Sin\, rx\, .\, Sin\, s + (e^{sx}-e^{-sx})(e^r + Cos\, rx)\, Cos\, s}{e^r + 2\, Cos\, rx + e^{-r}} \frac{dx}{e^{\pi x}-e^{-\pi x}} = \frac{Sin\, s}{2(e^{-r}+1)} - \sum_0^\infty \frac{(-1)^n\, Sin\, s}{e^{nr}+2\, Cos\, s + e^{-nr}}$ $[s<\pi]$ (IV, 382).

1) $\int e^{-\sqrt{2qx}} Sin\, x\, dx = \frac{1}{2}\left(Sin\frac{1}{2}q - Cos\frac{1}{2}q\right)\sqrt{q\pi} + \sum_0^\infty (-1)^n \frac{(2q)^{2n}}{(2n+1)^{2n/1}}$ (IV, 383).

2) $\int e^{-\sqrt{2qx}} Cos\, x\, dx = \frac{1}{2}\left(Sin\frac{1}{2}q + Cos\frac{1}{2}q\right)\sqrt{q\pi} - \sum_0^\infty (-1)^n \frac{(2q)^{2n+1}}{(2n+2)^{2n+1/1}}$ (IV, 383).

3) $\int \left\{e^{-x} Cos(p\sqrt{x}) - 2pe^{-x^2} Sin\, px\right\} dx = 1$ (IV, 384).

4) $\int e^{-\frac{p}{x}} Sin^2\left(\frac{q}{x}\right) dx = q\, Arctg\frac{q}{p} + \frac{1}{4}p\, l\frac{p^2}{p^2+4q^2}$ (VIII, 581).

5) $\int e^{-x^2+px\,Cos\lambda} Sin(px\,Sin\lambda)\, dx = \frac{1}{2}e^{\frac{1}{4}p^2 Cos 2\lambda} Sin\left(\frac{1}{4}p^2 Sin 2\lambda\right).\sqrt{\pi} + \frac{1}{2}\sum_0^\infty \frac{Sin\{(2n+1)\lambda\}.p^{2n+1}}{(n+2)^{n/1}}$

(VIII, 490).

6) $\int e^{-x^2+px\,Cos\lambda} Cos(px\,Sin\lambda)\, dx = \frac{1}{2}e^{\frac{1}{4}p^2 Cos 2\lambda} Cos\left(\frac{1}{4}p^2 Sin 2\lambda\right).\sqrt{\pi} + \frac{1}{2}\sum_0^\infty \frac{Cos\{(2n+1)\lambda\}.p^{2n+1}}{(n+2)^{n/1}}$

(VIII, 490).

7) $\int e^{-px^2}\left(e^{2qx}+e^{-2qx}\right) Sin(rx^2)\, dx = \frac{\sqrt{\pi}}{a} e^{-\frac{q^2}{a^2}Cos 2\alpha} Sin\left(\frac{q^2}{a^2} Sin 2\alpha\right)$ (IV, 385).

8) $\int e^{-px^2}\left(e^{2qx}+e^{-2qx}\right) Cos(rx^2)\, dx = \frac{\sqrt{\pi}}{a} e^{-\frac{q^2}{a^2}Cos 2\alpha} Cos\left(\frac{q^2}{a^2} Sin 2\alpha\right)$ (IV, 385).

9) $\int e^{-px^2}\left\{e^{2qx} Sin(rx^2-2sx) + e^{-2qx} Sin(rx^2+2sx)\right\} dx = \frac{\sqrt{\pi}}{a} e^c\, Sin\gamma$ (IV, 385).

10) $\int e^{-px^2}\left\{e^{2qx} Cos(rx^2-2sx) + e^{-2qx} Cos(rx^2+2sx)\right\} dx = \frac{\sqrt{\pi}}{a} e^c\, Cos\gamma$ (IV, 385).

11) $\int e^{-\frac{1}{2}\left\{(x+qi)^{2a}+(x-qi)^{2a}\right\}} Cos\left\{\frac{(x+qi)^{2a}-(x-qi)^{2a}}{2}\right\}.dx = \frac{1}{2a}\Gamma\left(\frac{1}{2a}\right)$ (IV, 384).

12) $\int e^{-\frac{p^2}{x^2}} Sin(2q^2x^2)\, dx = e^{-2pq}\sqrt{\pi}\frac{Sin 2pq + Cos 2pq}{4q}$ (VIII, 452).

13) $\int e^{-\frac{p^2}{x^2}} Cos(2q^2x^2)\, dx = e^{-2pq}\sqrt{\pi}\frac{Cos 2pq - Sin 2pq}{4q}$ (VIII, 452).

14) $\int e^{-px^2-\frac{q^2}{x^2}} Sin(rx^2)\, dx = \frac{1}{2}e^{-2qg}\sqrt{\frac{\pi}{p^2+r^2}}.(f\, Cos 2fq + g\, Sin 2fq)$ (VIII, 452).

15) $\int e^{-px^2-\frac{q^2}{x^2}} Cos(rx^2)\, dx = \frac{1}{2}e^{-2qg}\sqrt{\frac{\pi}{p^2+r^2}}.(g\, Cos 2fq - f\, Sin 2fq)$ (VIII, 452).

16) $\int e^{-p^2x^2 Cos 2\lambda - \frac{q^2}{4x^2}} Sin(p^2 x^2 Sin 2\lambda)\, dx = \frac{\sqrt{\pi}}{2p} e^{-pq Cos\lambda} Sin(\lambda + pq Sin\lambda)$ V. T. 268, N. 14.

17) $\int e^{-p^2x^2 Cos 2\lambda - \frac{q^2}{4x^2}} Cos(p^2 x^2 Sin 2\lambda)\, dx = \frac{\sqrt{\pi}}{2p} e^{-pq Cos\lambda} Cos(\lambda + pq Sin\lambda)$ V. T. 268, N. 15.

18) $\int e^{-x^2 - \frac{pr^2}{(p^2+q^2)x^2}} Sin\left\{\frac{p^2 q}{(p^2+q^2)x^2}\right\} dx = \frac{1}{2}\sqrt{\pi}\,.\,e^{-2gp} Sin 2fp$ (IV, 383).

19) $\int e^{-x^2 - \frac{pr^2}{(p^2+q^2)x^2}} Cos\left\{\frac{p^2 q^2}{(p^2+q^2)x^2}\right\} dx = \frac{1}{2}\sqrt{\pi}\,.\,e^{-2gp} Cos 2fp$ (IV, 383).

20) $\int e^{-p\left(x^2+\frac{1}{x^2}\right)} Sin\left\{r\left(x^2+\frac{1}{x^2}\right)\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos 2\alpha}{p}}\,.\,e^{-2p} Sin(\alpha + 2\, Tg 2\alpha)$ V. T. 268, N. 22.

21) $\int e^{-p\left(x^2+\frac{1}{x^2}\right)} Cos\left\{r\left(x^2+\frac{1}{x^2}\right)\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos 2\alpha}{p}}\,.\,e^{-2p} Cos(\alpha + 2\, Tg 2\alpha)$ V. T. 268, N. 23.

22) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2+\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha+\beta)} Sin\left\{2ab Sin(\alpha+\beta)+\alpha\right\}$ (IV, 384).

23) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2+\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha+\beta)} Cos\left\{2ab Sin(\alpha+\beta)+\alpha\right\}$ (IV, 384).

24) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2-\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha-\beta)} Sin\left\{2ab Sin(\alpha-\beta)+\alpha\right\}$ (IV, 384).

25) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2-\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha-\beta)} Cos\left\{2ab Sin(\alpha-\beta)+\alpha\right\}$ (IV, 384).

26) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\, rx^2\,.\,Sin\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\left\{e^{-2ab Cos(\alpha-\beta)} Cos\left\{2ab Sin(\alpha-\beta)+\alpha\right\} -\right.$

$\left. - e^{-2ab Cos(\alpha+\beta)} Cos\left\{2ab Sin(\alpha+\beta)+\alpha\right\}\right\}$ V. T. 268, N. 23, 25.

27) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\, rx^2\,.\,Cos\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\left\{e^{-2ab Cos(\alpha+\beta)} Sin\left\{2ab Sin(\alpha+\beta)+\alpha\right\} +\right.$

$\left. + e^{-2ab Cos(\alpha-\beta)} Sin\left\{2ab Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 22, 24.

28) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\, rx^2\,.\,Sin\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\left\{e^{-2ab Cos(\alpha+\beta)} Sin\left\{2ab Sin(\alpha+\beta)+\alpha\right\} -\right.$

$\left. - e^{-2ab Cos(\alpha-\beta)} Sin\left\{2ab Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 22, 24.

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29) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\, r x^2 . Cos\left(\frac{s}{x^2}\right) dx = \frac{\sqrt{\pi}}{4a}\left\{e^{-2ab\,Cos(\alpha+\beta)} Cos\left\{2ab\,Sin(\alpha+\beta)+\alpha\right\}+\right.$

$\left.+e^{-2ab\,Cos(\alpha-\beta)} Cos\left\{2ab\,Sin(\alpha-\beta)+\alpha\right\}\right\}$ V. T. 268, N. 23, 25.

30) $\int e^{-p\frac{1+x^4}{x^2}-\frac{q^2x^2}{(1-x^2)^2}} Sin\left\{\frac{1+x^4}{x^2} p\, Tg\,\lambda\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos\,\lambda}{p}} . e^{-2(gq+p)} Sin\left[\frac{1}{2}\left\{fq+p Tg\,\lambda+\lambda\right\}\right]$ (IV, 384).

31) $\int e^{-p\frac{1+x^4}{x^2}-\frac{q^2x^2}{(1-x^2)^2}} Cos\left\{\frac{1+x^4}{x^2} p\, Tg\,\lambda\right\} dx = \frac{1}{2}\sqrt{\frac{\pi\, Cos\,\lambda}{p}} . e^{-2(gq+p)} Cos\left[\frac{1}{2}\left\{fq+p Tg\,\lambda+\lambda\right\}\right]$ (IV, 384).

Dans 7) à 31) on a $a^4=p^2+r^2$, $b^4=q^2+s^2$, $c=\frac{q^2+s^2}{\sqrt{p^2+r^2}} Cos\left\{Arctg\frac{r}{q}-2\,Arctg\frac{s}{q}\right\}$,

$f=\sqrt{\frac{-p+\sqrt{p^2+r^2}}{2}}, g=\sqrt{\frac{p+\sqrt{p^2+r^2}}{2}}$, $\alpha=\frac{1}{2}Arctg\frac{r}{p}$,

$\beta=\frac{1}{2}Arctg\frac{s}{q}$, $\gamma=\frac{q^2+s^2}{\sqrt{p^2+r^2}} Sin\left\{Arctg\frac{r}{p}-2\,Arctg\frac{s}{q}\right\}+Arctg\frac{s}{q}$.

32) $\int e^{-qx^{\binom{h-1}{h-r}}} Sin\left\{(p-h+r)x\right\} dx = \binom{h-1}{h-r}\frac{p-h+r}{(p-h+r)^2+q^2}$

33) $\int e^{-qx^{\binom{h-1}{h-r}}} Cos\left\{(p-h+r)x\right\} dx = \binom{h-1}{h-r}\frac{q}{(p-h+r)^2+q^2}$

Sur 32) et 33) voyez Raabe, Dschr. Zür. 8, 1.

F. Exponent.; Circ. Dir. TABLE 269. Lim. $-\infty$ et $+\infty$.

1) $\int e^{-q^2x^2} Sin\, px\, dx = 0$ (VIII, 516).

2) $\int e^{-q^2x^2} Sin\left\{p(x+\lambda)\right\} dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}} Sin\, p\lambda$ (IV, 385).

3) $\int e^{-q^2x^2} Cos\left\{p(x+\lambda)\right\} dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}} Cos\, p\lambda$ (IV, 385).

4) $\int e^{-q^2(x^2-2\lambda x)} Sin\, px\, dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}+q^2\lambda^2} Sin\, p\lambda$ V. T. 269, N. 2, 3.

5) $\int e^{-q^2(x^2-2\lambda x)} Cos\, p\, x\, dx = \frac{\sqrt{\pi}}{q} e^{-\frac{p^2}{4q^2}+q^2\lambda^2} Cos\, p\lambda$ V. T. 269, N. 2, 3.

6) $\int e^{-(p x^2+q x+r)} Sin\,(s x^2+t x+u)\, dx = e^{-r+\frac{p(q^2-t^2)+2qst}{4(p^2+s^2)}} Sin\left\{u+\frac{(q^2-t^2)s-2pqt}{4(p^2+s^2)}+\right.$
$\left.+\frac{1}{2} Arctg\frac{s}{p}\right\} \sqrt{\frac{\pi}{\sqrt{p^2+s^2}}}$ (IV, 386*).

7) $\int e^{-(p x^2+q x+r)} Cos\,(s x^2+t x+u)\, dx = e^{-r+\frac{p(q^2-t^2)+2qst}{4(p^2+s^2)}} Cos\left\{u+\frac{(q^2-t^2)s-2pqt}{4(p^2+s^2)}+\right.$
$\left.+\frac{1}{2} Arctg\frac{s}{p}\right\} \sqrt{\frac{\pi}{\sqrt{p^2+s^2}}}$ (IV, 386*).

8) $\int e^{-\left(x^2+\frac{p^2}{x^2}\right) Cos\lambda} Sin\left\{\left(x^2+\frac{p^2}{x^2}\right) Sin\lambda\right\} dx = e^{-2p\, Cos\lambda} Sin\left\{2p\, Sin\lambda+\frac{1}{2}\lambda\right\}.\sqrt{\pi}$

9) $\int e^{-\left(x^2+\frac{p^2}{x^2}\right) Cos\lambda} Cos\left\{\left(x^2+\frac{p^2}{x^2}\right) Sin\lambda\right\} dx = e^{-2p\, Cos\lambda} Cos\left\{2p\, Sin\lambda+\frac{1}{2}\lambda\right\}.\sqrt{\pi}$

Sur 8) et 9) voyez Boole, Phil. Trans. 1857.

F. Expon. $e^{\pm a x}$; Circ. Dir. TABLE 270. Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{(q+1)x i} Sin^{q-1} x\, dx = \frac{1}{q} e^{\frac{1}{2} q\pi i}$ (VIII, 253).

2) $\int e^{(p+q)x i} Sin^{q-1} x . Cos^{p-1} x\, dx = e^{\frac{1}{2} q\pi i} \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ (VIII, 430).

3) $\int e^{2x} Sin^2 x\, dx = \frac{1}{8}(3 e^{\pi}-1)$ (IV, 386).

4) $\int e^{-p x} Sin^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)} \frac{1}{p}\left[1-e^{-\frac{1}{2}p\pi}\left\{1+\frac{p^2}{1.2}+\frac{p^2(2^2+p^2)}{1^{4/1}}+\ldots+\right.\right.$
$\left.\left.+\frac{p^2(2^2+p^2)\ldots\{(2a-2)^2+p^2\}}{1^{2a/1}}\right\}\right]$ (VIII, 251).

5) $\int e^{-p x} Sin^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}}\left[1-p e^{-\frac{1}{2}p\pi}\left\{1+\frac{1^2+p^2}{1.2.3}+\ldots+\right.\right.$
$\left.\left.+\frac{(1^2+p^2)(3^2+p^2)\ldots\{(2a-1)^2+p^2\}}{1^{2a+1/1}}\right\}\right]$ (VIII, 251).

6) $\int e^{-px} Cos^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\frac{1}{p}\left[-e^{-\frac{1}{2}p\pi}+1+\frac{p^2}{1.2}+\frac{p^2(2^2+p^2)}{1^{4/1}}+\dots+\right.$
$\left.+\frac{p^2(2^2+p^2)\dots\{(2a-2)^2+p^2\}}{1^{2a/1}}\right]$ (VIII, 251).

7) $\int e^{-px} Cos^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\left[e^{-\frac{1}{2}p\pi}+p\left\{1+\frac{1^2+p^2}{1.2.3}+\dots+\right.\right.$
$\left.\left.+\frac{(1^2+p^2)(3^2+p^2)\dots\{(2a-1)^2+p^2\}}{1^{2a+1/1}}\right\}\right]$ (VIII, 251).

8) $\int (e^{2qx}+e^{-2qx}) Cos^{2b} x\, dx = \frac{\pi}{2^{2b+1}}\frac{1^{2b/1}}{\Gamma(b+qi+1)\Gamma(b-qi+1)}$ (IV, 386).

9) $\int \{Sin(pe^{xi}Cos x)+Sin(pe^{-xi}Cos x)\}\frac{dx}{r^2 Cos^2 x+q^2 Sin^2 x}=\frac{\pi}{qr}Sin\frac{pq}{q+r}$ (VIII, 274*).

10) $\int \{Cos(pe^{xi}Cos x)+Cos(pe^{-xi}Cos x)\}\frac{dx}{r^2 Cos^2 x+q^2 Sin^2 x}=\frac{\pi}{qr}Cos\frac{pq}{p+r}$ (VIII, 274*).

F. Exp. à exp. de Circ. Dir.; Circ. Dir. ent. — TABLE 271. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q\,Sin x} Sin 2x\, dx = \frac{2}{q^2}\{(q-1)e^q+1\}$ V. T. 80, N. 1.

2) $\int e^{-q\,Tg x}dx = Ci(q).Sin q + Cos q.\left\{\frac{\pi}{2}-Si(q)\right\}$ V. T. 91, N. 7.

3) $\int e^{-q\,Tg x} Tg x\, dx = -Ci(q).Cos q + Sin q.\left\{\frac{\pi}{2}-Si(q)\right\}$ V. T. 91, N. 8.

4) $\int (e^{q\,Sin x}-e^{-q\,Sin x}) Sin(q Cos x).Sin 2ax\, dx = \frac{\pi}{2}\frac{(-1)^{a-1}q^{2a}}{1^{2a/1}}$ (IV, 387).

5) $\int (e^{q\,Sin x}+e^{-q\,Sin x}) Sin(q Cos x).Cos\{(2a-1)x\}\, dx = \frac{\pi}{2}\frac{(-1)^{a-1}q^{2a-1}}{1^{2a-1/1}}$ (IV, 387).

6) $\int (e^{q\,Sin x}-e^{-q\,Sin x}) Cos(q Cos x).Sin\{(2a-1)x\}\, dx = \frac{\pi}{2}\frac{(-1)^{a-1}q^{2a-1}}{1^{2a-1/1}}$ (IV, 387).

7) $\int (e^{q\,Sin x}+e^{-q\,Sin x}) Cos(q Cos x).Cos 2ax\, dx = \frac{\pi}{2}\frac{(-1)^{a}q^{2a}}{1^{2a/1}}$ (IV, 387).

8) $\int e^{p\,Cos 2x} Sin(p Sin 2x).Tg x\, dx = \frac{\pi}{2}(1-e^{-p})$ (VIII, 562*).

1) $\int e^{-q\,Tg\,x}\frac{Tg^p\,x}{Sin\,2\,x}dx=\frac{1}{2\,q^p}\Gamma\,(p)\,[p>-1]$ V. T. 81, N. 1.

2) $\int e^{-q\,Cot\,x}\frac{dx}{Tg\,x}=-Ci\,(q)\,.\,Cos\,q+Sin\,q\,.\left\{\frac{\pi}{2}-Si\,(q)\right\}$ V. T. 91, N. 8.

3) $\int e^{-q\,Tg\,x}\frac{dx}{Cos\,2\,x}=\frac{1}{2}\left\{e^{-q}\,Ei\,(q)-e^q\,Ei\,(-q)\right\}$ V. T. 91, N. 14.

4) $\int e^{-q\,Tg\,x}\frac{Tg\,x}{Cos\,2\,x}dx=\frac{1}{2}\left\{e^{-q}\,Ei\,(q)+e^q\,Ei\,(-q)\right\}$ V. T. 91, N. 15.

5) $\int e^{q\,Cos\,2\,x}\,Sin\,(q\,Sin\,2\,x)\frac{dx}{Tg\,x}=\frac{\pi}{2}\,(e^p-1)$ (VIII, 562*).

6) $\int e^{-q\,Tg^2\,x}\frac{Tg^{2\,a}\,x}{Sin\,2\,x}dx=\frac{1}{4\,p^a}1^{a-1/1}$ V. T. 81, N. 7.

7) $\int e^{-q\,Tg^2\,x}\frac{Tg^{2\,a+1}\,x}{Sin\,2\,x}dx=\frac{1}{4}\;\frac{1^{a/2}}{(2\,p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

8) $\int e^{-Tg^p\,x}\frac{Tg^q\,x}{Sin\,2\,x}dx=\frac{1}{2\,p}\Gamma\left(\frac{q}{p}\right)$ V. T. 81, N. 8.

9) $\int e^{-q\,Tg^2\,x}\frac{dx}{Cos^2\,x}=\frac{1}{2}\sqrt{\frac{\pi}{p}}$ V. T. 26, N. 2.

10) $\int e^{-q\,Tg^2\,x}\frac{Tg^{2\,a}\,x}{Cos^2\,x}dx=\frac{1^{a/2}}{p^a\,.\,2^{a+1}}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

11) $\int e^{-q\,Tg^2\,x}\frac{dx}{Cos^4\,x}=\frac{1+2\,p}{4\,p}\sqrt{\frac{\pi}{p}}$ V. T. 272, N. 9, 10.

12) $\int e^{-q\,Tg^2\,x}\frac{Cos\,2\,x}{Cos^4\,x}dx=\frac{2\,p-1}{4\,p}\sqrt{\frac{\pi}{p}}$ V. T. 272, N. 9, 10.

13) $\int\frac{e^{-p\,Tg\,x}-Cos^2\,x}{Sin\,2\,x}dx=-\frac{1}{2}\,\mathrm{A}-\frac{1}{2}\,l\,p$ V. T. 92, N. 11.

14) $\int\frac{e^{-p\,Tg\,x}-e^{-q\,Tg\,x}}{Sin\,2\,x}dx=\frac{1}{2}\,l\frac{q}{p}$ V. T. 89, N. 2.

15) $\int e^{-p^2\,Tg^2\,x-q^2\,Cot^2\,x}\frac{dx}{Sin^2\,x}=\frac{1}{2\,q}\,e^{-2\,p\,q}\sqrt{\pi}$ V. T. 89, N. 1.

16) $\int e^{-p\,Tg^2\,x-q\,Cot^2\,x}\frac{Cos^{2(a-1)}x}{Sin^{2\,a}\,x}dx=\frac{1}{2}\left(\frac{p}{q}\right)^{\frac{1}{2}a}e^{-2\sqrt{p\,q}}\sqrt{\frac{\pi}{p}}\,.\,\sum_0^\infty\frac{(a-n)^{2\,n/1}}{1^{n/1}}\left(\frac{1}{4\sqrt{p\,q}}\right)^n$ V. T. 90, N. 2.

17) $\int e^{-p\,Tg^2 x - q^2\,Cot^2 x}\,\frac{dx}{Cos^2 x} = \frac{1}{2p}\,e^{-2pq}\sqrt{\pi}$ V. T. 89, N. 1.

18) $\int e^{-q(Tg^2 x + Cot^2 x)}\,\frac{Tg^{2a+1} x}{Sin\,2x}\,dx = \frac{1}{4}\,e^{-2q}\sqrt{\frac{\pi}{q}}\cdot\sum_0^{a+1}\frac{1}{(2q)^n}\,\frac{(a-n+1)^{2n/1}}{2^n\,1^{n/1}}$ V. T. 81, N. 10.

F. Exp. à exp. de Circ. Dir.; Circ. Dir. en dén. d' autre forme. TABLE 273. Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-p\,Cot\,x}\,\frac{dx}{Cos\,2x\,.\,Tg\,x} = -\frac{1}{2}\left\{e^{-p}\,Ei(p) + e^{p}\,Ei(-p)\right\}$ V. T. 91, N. 15.

2) $\int e^{-p\,Cot\,x}\,\frac{dx}{Sin\,2x\,.\,Tg^p x} = \frac{1}{2q^p}\,\Gamma(p)\ [p > -1]$ V. T. 81, N. 1.

3) $\int e^{-p\,Cot^2 x}\,\frac{dx}{Sin\,2x\,.\,Tg^{2a} x} = \frac{1^{a-1/1}}{4p^a}$ V. T. 81, N. 7.

4) $\int e^{-p\,Cot^2 x}\,\frac{dx}{Sin\,x\,.\,Tg^{2a+1} x} = \frac{1}{4}\,\frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

5) $\int e^{-Cot^p x}\,\frac{dx}{Sin\,2x\,.\,Tg^q x} = \frac{1}{2p}\,\Gamma\left(\frac{q}{p}\right)$ V. T. 81, N. 8.

6) $\int e^{-q(Tg^2 x + Cot^2 x)}\,\frac{dx}{Tg^{2a+1} x\,.\,Sin\,2x} = \frac{1}{4}\,e^{-2q}\sqrt{\frac{\pi}{q}}\cdot\sum_0^{a+1}\frac{1}{(2q)^n}\,\frac{(a-n+1)^{2n/1}}{2^n\,1^{n/1}}$ V. T. 81, N. 10.

7) $\int \frac{(e^{xi}\,Cos\,x)^p + (e^{-xi}\,Cos\,x)^p}{Cos^2 x + q^2\,Sin^2 x}\,dx = \frac{\pi}{q}\left(\frac{q}{q+1}\right)^p$ (VIII, 611).

8) $\int \frac{e^{p\,Cos\,2x}\,Cos(p\,Sin\,2x)}{Cos^2 x + q^2\,Sin^2 x}\,dx = \frac{\pi}{2q}\,e^{p\frac{q-1}{q+1}}$ (IV, 395*).

9) $\int \frac{e^{p\,Sin\,2x} + e^{-p\,Sin\,2x}}{r^2\,Cos^2 x + q^2\,Sin^2 x}\,Sin(2p\,Cos^2 x)\,dx = \frac{\pi}{qr}\,Sin\left(\frac{2pq}{q+r}\right)$ (VIII, 275).

10) $\int \frac{e^{p\,Sin\,2x} - e^{-p\,Sin\,2x}}{r^2\,Cos^2 x + q^2\,Sin^2 x}\,Cos(2p\,Cos^2 x)\,dx = \frac{\pi}{qr}\,Cos\left(\frac{2pq}{q+r}\right)$ (VIII, 275).

11) $\int \frac{e^{-p\,Tg\,x}}{Sin\,2x \pm q\,Cos\,2x \pm q}\,dx = -\frac{1}{2}\,e^{\pm pq}\,Ei(\mp pq)$ V. T. 91, N. 1, 4.

12) $\int \frac{e^{-p\,Cot\,x}}{Sin\,2x \pm q\,Cos\,2x \mp q}\,dx = -\frac{1}{2}\,e^{\mp pq}\,Ei(\pm pq)$ V. T. 91, N. 1, 4.

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13) $\int \frac{e^{-p\,Tg\,x}\,Sin\,2\,x}{(1-q^2)-2\,q^2\,Cos\,2\,x-(1+q^2)\,Cos^2\,2\,x}\,dx = -\frac{1}{4}\left\{e^{-p\,q}\,Ei(pq)+e^{p\,q}\,Ei(-pq)\right\}$

V. T. 273, N. 11.

14) $\int \frac{e^{-p\,Cot\,x}\,Sin\,2\,x}{(1-q^2)+2\,q^2\,Cos\,2\,x-(1+q^2)\,Cos^2\,2\,x}\,dx = -\frac{1}{4}\left\{e^{-p\,q}\,Ei(pq)+e^{p\,q}\,Ei(-pq)\right\}$

V. T. 273, N. 12.

F. Exp. en dén. polynôme; Circ. Dir. en numér. TABLE 274. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{dx}{e^{\frac{1}{4}\pi\,Tg\,x}+e^{-\frac{1}{4}\pi\,Tg\,x}} = \frac{1}{2\sqrt{2}}\left\{\pi - l\,\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 97, N. 3.

2) $\int \frac{dx}{e^{\frac{1}{2}\pi\,Tg\,x}+e^{-\frac{1}{2}\pi\,Tg\,x}} = \frac{1}{2}\,l\,2$ V. T. 97, N. 2.

3) $\int \frac{dx}{e^{\pi\,Tg\,x}+e^{-\pi\,Tg\,x}} = \frac{4-\pi}{4}$ V. T. 97, N. 1.

4) $\int \frac{Tg\,x}{e^{\frac{1}{4}\pi\,Tg\,x}-e^{-\frac{1}{4}\pi\,Tg\,x}}\,dx = \frac{\pi}{4}\sqrt{2}-1+\frac{1}{4}\sqrt{2}\,.\,l\,\frac{\sqrt{2}+1}{\sqrt{2}-1}$ V. T. 97, N. 9.

5) $\int \frac{Tg\,x}{e^{\frac{1}{2}\pi\,Tg\,x}-e^{-\frac{1}{2}\pi\,Tg\,x}}\,dx = \frac{\pi-2}{4}$ V. T. 97, N. 8.

6) $\int \frac{Tg\,x}{e^{\pi\,Tg\,x}-e^{-\pi\,Tg\,x}}\,dx = \frac{1}{2}\left(-\frac{1}{2}+l\,2\right)$ V. T. 97, N. 7.

7) $\int \frac{Tg\,x}{e^{2\pi\,Tg\,x}-1}\,dx = \frac{1}{2}\,\mathrm{A}-\frac{1}{4}$ V. T. 97, N. 14.

8) $\int \frac{Tg\,x}{e^{2\,q\,\pi\,Tg\,x}-1}\,dx = \frac{1}{2}\,l\,q+\frac{1}{4q}-\frac{1}{2}\,Z'(q+1)$ V. T. 97, N. 15.

9) $\int \frac{e^{p\,Tg\,x}-e^{-p\,Tg\,x}}{e^{\pi\,Tg\,x}-e^{-\pi\,Tg\,x}}\,dx = -\frac{1}{2}\,p\,Cos\,p+\frac{1}{2}\,Sin\,p\,.\,l\left\{2\,(1+Cos\,p)\right\}\ [0<p\leqq\pi]$ V. T. 97, N. 10.

10) $\int \frac{e^{p\,Tg\,x}+e^{-p\,Tg\,x}}{e^{\frac{1}{2}\pi\,Tg\,x}-e^{-\frac{1}{2}\pi\,Tg\,x}}\,Tg\,x\,dx = -1+\frac{\pi}{2}\,Cos\,p+\frac{1}{2}\,Sin\,p\,.\,l\,\frac{1+Sin\,p}{1-Sin\,p}\left[0\leqq p\leqq\frac{\pi}{2}\right]$ V. T. 97, N. 13.

11) $\int \frac{e^{p\,Tg\,x}-e^{-p\,Tg\,x}}{e^{\frac{1}{2}\pi\,Tg\,x}-e^{-\frac{1}{2}\pi\,Tg\,x}}\,dx = \frac{\pi}{2}\,Sin\,p-\frac{1}{2}\,Cos\,p\,.\,l\,\frac{1+Sin\,p}{1-Sin\,p}\left[0\leqq p\leqq\frac{\pi}{2}\right]$ V. T. 97, N. 11.

12) $\int \frac{e^{p\,Tg\,x}+e^{-p\,Tg\,x}}{e^{\pi\,Tg\,x}-e^{-\pi\,Tg\,x}}\,Tg\,x\,dx = \frac{1}{2}\,(p\,Sin\,p-1)+\frac{1}{2}\,Cos\,p\,.\,l\left\{2(1+Cos\,p)\right\}\ [0<p<\pi]$ V. T. 97, N. 12.

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13) $\int \frac{e^{(r-p)Tg\,x} - e^{(p-r)Tg\,x}}{e^{r\,Tg\,x} - e^{-r\,Tg\,x}}\,dx = \pi \sum_1^\infty \frac{Sin\,\frac{n p \pi}{r}}{n\pi + r}\ [p^2 < r^2]$ V. T. 97, N. 18.

14) $\int \frac{e^{(r-p)Tg\,x} + e^{(p-r)Tg\,x}}{e^{r\,Tg\,x} - e^{-r\,Tg\,x}}\,Tg\,x\,dx = \frac{\pi}{2r} + \pi \sum_1^\infty \frac{Cos\,\frac{n p \pi}{r}}{n\pi + r}\ [p^2 \leqq r^2]$ V. T. 97, N. 19.

F. Exp. en dén. polynôme; Circ. Dir. en dén. TABLE 275. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Tg^q\,x}{e^{p\,Tg\,x}+1}\,\frac{dx}{Sin\,2x} = \frac{1}{2p^q}\Gamma(q)\sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

2) $\int \frac{Tg^q\,x}{e^{p\,Tg\,x}-1}\,\frac{dx}{Sin\,2x} = \frac{1}{2p^q}\Gamma(q)\sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

3) $\int \frac{1}{e^{p\,Tg\,x}-1}\,\frac{Tg\,x}{Cos\,2x}\,dx = \frac{\pi^2}{p^2}\sum_0^\infty (-1)^n \left(\frac{2\pi}{p}\right)^{2n} \frac{1}{n+1} B_{2n+1}$ V. T. 97, N. 21*.

4) $\int \frac{1}{e^{p\,Tg\,x}-1}\,\frac{Sin\,2x}{Cos^2\,2x}\,dx = \frac{2\pi^2}{p^2}\sum_0^\infty (-1)^n \left(\frac{2\pi}{p}\right)^{2n} B_{2n+1}$ V. T. 97, N. 23*.

5) $\int \frac{1}{e^{p\,Tg\,x}-1}\,\frac{Sin^2\,x}{Tg\,x}\,dx = \frac{\pi^2}{p^2}\sum_0^\infty \left(\frac{2\pi}{p}\right)^{2n} B_{2n+1}$ V. T. 97, N. 22*.

6) $\int \frac{Sin\,2ax}{e^{2\pi Cot\,x}-1}\,\frac{dx}{Sin^{2a+2}\,x} = (-1)^a \frac{2a-1}{4(2a+1)}$

7) $\int \frac{Sin\,2ax}{e^{\pi Cot\,x}-1}\,\frac{dx}{Sin^{2a+1}\,x} = (-1)^a \frac{a}{2a+1}$

8) $\int \frac{Sin\,2ax}{e^{\pi Cot\,x} - e^{-\pi Cot\,x}}\,\frac{dx}{Sin^{2a+2}\,x} = (-1)^a \frac{1}{4}$

Sur 6) à 8) voyez Catalan, C. R. 54, 1059.

9) $\int \frac{1}{e^{p\,Cot\,x}+1}\,\frac{dx}{Tg^q\,x\,.\,Sin\,2x} = \frac{1}{2p^q}\Gamma(q)\sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

10) $\int \frac{1}{e^{p\,Cot\,x}-1}\,\frac{dx}{Tg^q\,x\,.\,Sin\,2x} = \frac{1}{2p^q}\Gamma(q)\sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

11) $\int \frac{e^{-p\,Tg\,x} - e^{-q\,Tg\,x}}{e^{-Tg\,x}+1}\,\frac{dx}{Sin\,2x} = \frac{1}{2}\,l\,\frac{\Gamma\left(\frac{1}{2}p\right)\Gamma\left(\frac{q+1}{2}\right)}{\Gamma\left(\frac{1}{2}q\right)\Gamma\left(\frac{p+1}{2}\right)}$ V. T. 93, N. 6.

12) $\int \frac{e^{q\,Tg\,x} - e^{-q\,Tg\,x}}{e^{p\,Tg\,x} + e^{-p\,Tg\,x}}\,\frac{dx}{Sin\,2x} = \frac{1}{2}\,l\,Tg\left\{\frac{p+q}{4p}\pi\right\}$ V. T. 95, N. 3.

13) $\int \frac{(e^{q\,Tg\,x}-e^{-q\,Tg\,x})^2}{e^{Tg\,x}+1}\,\frac{dx}{Sin\,2x}=-\frac{1}{2}\,l\,(q\pi\,Cot\,q\pi)$ V. T. 93, N. 9.

14) $\int \frac{(e^{q\,Tg\,x}-e^{-q\,Tg\,x})^2}{e^{p\,Tg\,x}-e^{-p\,Tg\,x}}\,\frac{dx}{Sin\,2x}=\frac{1}{2}\,l\,Sec\,\frac{q\pi}{p}$ V. T. 95, N. 5.

15) $\int \frac{Sin\left(\frac{\pi}{b}\,Sin\,x\right).Sin\{(2a-1)x\}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,dx=\frac{(-1)^{a-1}}{1^{2a-1/1}}\,\frac{2^{2a}-1}{8a}\,b\left(\frac{\pi}{b}\right)^{2a}B_{2a-1}$ (IV, 391).

16) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}-e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Sin\left(\frac{\pi}{2b}Sin\,x\right).Sin\,2ax\,dx=\frac{(-1)^{a-1}}{4}\,\frac{b}{1^{2a/1}}\left(\frac{\pi}{2b}\right)^{2a+1}B_{2a}$ (IV, 391).

17) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}+e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right)dx=\frac{1}{2}\pi$ (IV, 391).

18) $\int \frac{e^{\frac{\pi}{b}Cos\,x}-e^{-\frac{\pi}{b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\{(2a-1)x\}\,dx=\frac{(-1)^{a-1}}{1^{2a-1/1}}\,\frac{2^{2a}-1}{8a}\,b\left(\frac{\pi}{b}\right)^{2a}B_{2a-1}$ (IV, 391).

19) $\int \frac{e^{\frac{\pi}{2b}Cos\,x}+e^{-\frac{\pi}{2b}Cos\,x}}{e^{\frac{\pi}{b}Cos\,x}+2\,Cos\left(\frac{\pi}{b}\,Sin\,x\right)+e^{-\frac{\pi}{b}Cos\,x}}\,Cos\left(\frac{\pi}{2b}\,Sin\,x\right).Cos\,2ax\,dx=\frac{(-1)^{a}}{4}\,\frac{b}{1^{2a/1}}\left(\frac{\pi}{2b}\right)^{2a+1}B_{2a}$ (IV, 391).

20) $\int \frac{Tg^q\,x}{e^{Tg\,x}+e^{-Tg\,x}+2\,Cos\,\lambda}\,\frac{dx}{Sin\,2x}=\frac{\Gamma(q)}{2\,Sin\,\lambda}\sum_1^\infty(-1)^{n-1}\frac{Sin\,n\lambda}{n^q}$ V. T. 96, N. 4.

21) $\int \frac{Sin\,2x.Sin^{4a+2}x-Sin^2x.Sin\{(4a+2)x\}+Sin\,4ax}{1-2\,Cos\,2x\,.\,Sin^2x+Sin^4x}\,\frac{dx}{(e^{2\pi\,Cot\,x}-1)\,Sin^{4a+2}x}=$

$=\frac{1}{4}\sum_1^a\left(\frac{4n-3}{4n-1}-\frac{4n-1}{4n+1}\right)$ Catalan, C. R. 54, 1059.

F. Exponent.; Circ. Dir. de forme irrat. TABLE 276. Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q\,Tg\,x}\,\frac{Tang^a\,x}{Cos\,x.\sqrt{Sin\,2x}}\,dx=\frac{1^{a/2}}{(2q)^a}\sqrt{\frac{\pi}{2q}}$ V. T. 98, N. 2.

2) $\int e^{-\frac{1}{q}Cosec\,2x}\,\frac{\sqrt{Sin\,2x}}{Cos^3\,x}\,dx=\frac{1+q}{\sqrt[q]{e}}\,2\sqrt{q\pi}$ V. T. 98, N. 3.

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3) $\int e^{-q\,Tg\,x} \frac{dx}{Cos x.\sqrt{Sin 2x}} = \sqrt{\frac{\pi}{2q}}$ V. T. 98, N. 10.

4) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{dx}{Cos x.\sqrt{Sin 2x}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 98, N. 12.

5) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{Tg^p x}{Sin x.\sqrt{Sin 2x}} dx = \frac{\sqrt{\pi q}}{\sqrt[q]{e}} \sum_0^\infty \frac{(p-n)^{2n/1}}{2^{n/2}} q^n$ V. T. 98, N. 17.

6) $\int e^{-\frac{1}{q} Cosec\, 2x} \frac{dx}{Cos x.Tg^p x.\sqrt{Sin 2x}} = \frac{\sqrt{2\pi q}}{\sqrt[q]{e}} \sum_0^\infty \frac{(p-n)^{2n/1}}{2^{n/2}} q^n$ V. T. 98, N. 17.

7) $\int e^{-\frac{1}{q} Cosec\, x} \frac{dx}{Tg x.\sqrt{Sin x.(1-Sin x)}} = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

8) $\int e^{-\frac{1}{q} Sec\, x} \frac{Tg x}{\sqrt{Cos x.(1-Cos x)}} dx = \frac{\sqrt{q\pi}}{\sqrt[q]{e}}$ V. T. 104, N. 11.

9) $\int e^{-q^2(Tg x + Cot x)} \frac{dx}{Cos x.\sqrt{Sin 2x}} = \frac{1}{2q} e^{-2q^2} \sqrt{2\pi}$ V. T. 98, N. 12.

10) $\int e^{-p\,Tg\,x - q\,Cot\,x} \frac{dx}{Cos x.\sqrt{Sin 2x}} = e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{2p}}$ V. T. 98, N. 15.

11) $\int e^{-q^2(Tg x + Cot x)} \frac{dx}{Sin x.\sqrt{Sin 2x}} = \frac{1}{2q} e^{-2q^2} \sqrt{2\pi}$ V. T. 98, N. 12.

12) $\int e^{-p\,Tg\,x - q\,Cot\,x} \frac{dx}{Tg^a x.Cos x.\sqrt{Sin 2x}} = \left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}} \sqrt{\frac{\pi}{2p}} . \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$ V. T. 98, N. 17.

13) $\int \frac{1}{e^{Tg x} + e^{-Tg x}} \frac{dx}{Cos x.\sqrt{Sin 2x}} = \sqrt{\frac{\pi}{2}} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 25.

14) $\int \frac{1}{e^{Tg x} + e^{-Tg x} + 1} \frac{dx}{Cos x.\sqrt{Sin 2x}} = \frac{\sqrt{2\pi}}{2 Sin \frac{1}{3}\pi} \sum_1^\infty (-1)^{n-1} \frac{Sin \frac{1}{3} n\pi}{\sqrt{n}}$ V. T. 98, N. 26.

F. Exponent.; Circ. Dir. } Forme entière. TABLE 277. Lim. 0 et π.

1) $\int e^{ax} Sin^b x\, dx = \frac{\pi}{2^b} \frac{e^{\frac{1}{2}a\pi} 1^{b/1}}{\Gamma\left(\frac{a+bi}{2}+1\right)\Gamma\left(\frac{a-bi}{2}+1\right)}$ (IV, 394).

2) $\int e^{2 Cos x} dx = \pi \sum_0^\infty \frac{1}{(1^{n/1})^2}$

3) $\int e^{2 Cos x} Cos x\, dx = \pi \sum_0^\infty \frac{1}{1^{n/1}\, 1^{n+1/1}}$

Sur 2) et 3) voyez Spitzer, Gr. 35, 137.

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4) $\int e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x)\,dx = \pi\ [p^2 \leqq 1]$ (VIII, 276).

5) $\int e^{p\,Cos\,x}\,Sin\,(2x + p\,Sin\,x)\,dx = \frac{1}{p}\left\{(p-1)e^p + (p+1)e^{-p}\right\}$ Vernier, A. M. 15, 165.

6) $\int e^{p\,Cos\,x}\,Cos\,(ax + p\,Sin\,x)\,dx = 0$ V. T. 277, N. 7, 8.

7) $\int e^{p\,Cos\,x}\,Sin\,(p\,Sin\,x)\,.\,Sin\,ax\,dx = \frac{\pi}{2}\,\frac{p^a}{1^{a/1}}$ (VIII, 276).

8) $\int e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x)\,.\,Cos\,ax\,dx = \frac{\pi}{2}\,\frac{p^a}{1^{a/1}}$ (VIII, 276).

9) $\int e^{p\,Cos\,x}\,Cos\,(ax - p\,Sin\,x)\,dx = \frac{p^a\,\pi}{1^{a/1}}$ V. T. 277, N. 7, 8.

10) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\,Sin\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_1^\infty \frac{Sin\,2n\lambda}{(1^{n/1})^2}\left(\frac{p}{2}\right)^{2n}$

11) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\,Cos\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_0^\infty \frac{Cos\,2n\lambda}{(1^{n/1})^2}\left(\frac{p}{2}\right)^{2n}$

12) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\,Cos\,x\,.\,Sin\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_0^\infty \frac{Sin\,\{(2n+1)\lambda\}}{1^{n/1}\,1^{n+1/1}}\left(\frac{p}{2}\right)^{2n+1}$

13) $\int e^{p\,Cos\,x\,.\,Cos\,\lambda}\,Cos\,x\,.\,Cos\,(p\,Cos\,x\,.\,Sin\,\lambda)\,dx = \sum_0^\infty \frac{Cos\,\{(2n+1)\lambda\}}{1^{n/1}\,1^{n+1/1}}\left(\frac{p}{2}\right)^{2n+1}$

Sur 10) à 13) voyez Spitzer, Schl. Z. 8, 292.

14) $\int e^{r(Cos\,px + Cos\,qx)}\,Sin\,(r\,Sin\,px)\,.\,Sin\,(r\,Sin\,qx)\,dx = \frac{\pi}{2}\sum_1^\infty \frac{1}{1^{pn/1}}\,\frac{1}{1^{qn/1}}\,r^{(p+q)n}$ (VIII, 634).

15) $\int e^{r(Cos\,px + Cos\,qx)}\,Cos\,(r\,Sin\,px)\,.\,Cos\,(r\,Sin\,qx)\,dx = \frac{\pi}{2}\left\{2 + \sum_1^\infty \frac{1}{1^{pn/1}}\,\frac{1}{1^{qn/1}}\,r^{(p+q)n}\right\}$ (VIII, 635*).

16) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\,Sin\,(p^a\,Sin\,ax)\,.\,Sin\,(q^b\,Sin\,bx)\,dx = \frac{\pi}{2}\sum_1^\infty \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}$ (VIII, 634).

17) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\,Cos\,(p^a\,Sin\,ax)\,.\,Cos\,(q^b\,Sin\,bx)\,dx = \pi + \frac{\pi}{2}\sum_1^\infty \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}$ (VIII, 634).

18) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\,Cos\,(p^a\,Sin\,ax + q^b\,Sin\,bx)\,dx = \pi$ V. T. 277, N. 16, 17.

19) $\int e^{p^a\,Cos\,ax + q^b\,Cos\,bx}\,Cos\,(p^a\,Sin\,ax - q^b\,Sin\,bx)\,dx = \pi\left\{1 + \sum_1^\infty \frac{1}{1^{an/1}}\,\frac{1}{1^{bn/1}}\,(pq)^{abn}\right\}$

V. T. 277, N. 16, 17.

$$20)\int (e^{p\,Sin\,x} + e^{-p\,Sin\,x})\left\{e^{q\,Sin\,x}\,Sin\,(x + q\,Cos\,x) - e^{-q\,Sin\,x}\,Sin\,(x - q\,Cos\,x)\right\}\,Cos\,(p\,Cos\,x)\,dx =$$

$$= 2\,q\,\pi\left\{2 + \sum_1^\infty \frac{(pq)^{2n}}{(2n+1)\left\{1^{2n/1}\right\}^2}\right. \text{ (VIII, 633).}$$

$$21)\int (e^{p\,Sin\,x} - e^{-p\,Sin\,x})\left\{e^{q\,Sin\,x}\,Cos\,(x + q\,Cos\,x) - e^{-q\,Sin\,x}\,Cos\,(x - q\,Cos\,x)\right\}\,Sin\,(p\,Cos\,x)\,dx =$$

$$= 2\,q\,\pi \sum_1^\infty \frac{(pq)^{2n}}{(2n+1)\left\{1^{2n/1}\right\}^2} \text{ (VIII, 633).}$$

F. Exponent.; Circ. Dir. } Forme fractionnaire. TABLE 278. Lim. 0 et π.

$$1)\int e^{p\,Cos\,x}\,Sin\,(p\,Sin\,x)\,\frac{dx}{Sin\,x} = \frac{\pi}{2}\,(e^p - e^{-p}) \text{ (VIII, 562).}$$

$$2)\int e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x)\,\frac{dx}{Cos\,x} = \infty \text{ (VIII, 563).}$$

$$3)\int e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x)\,\frac{Sin\,2\,a\,x}{Sin\,x}\,dx = \frac{\pi}{p}\sum_0^a \frac{p^{2a-n}}{1^{2a-2n-1/1}} \text{ Vernier, A. M. 15, 165.}$$

$$4)\int \frac{e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x)}{(1-q^2)+(1+q^2)\,Cos\,x}\,dx = \frac{\pi}{2\,q}\,e^{p\frac{q-1}{q+1}} \text{ (IV, 395*).}$$

$$5)\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{s - t\,Cos\,x}\,Sin\,(p\,Cos\,x)\,dx = \frac{\pi}{2\sqrt{s^2-t^2}}\,Sin\left\{p\,\frac{s-\sqrt{s^2-t^2}}{2\,t}\right\}\,[s > t] \text{ (VIII, 275).}$$

$$6)\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{s - t\,Cos\,x}\,Cos\,(p\,Cos\,x)\,dx = \frac{\pi}{2\sqrt{s^2-t^2}}\,Cos\left\{p\,\frac{s-\sqrt{s^2-t^2}}{2\,t}\right\}\,[s > t] \text{ (VIII, 275).}$$

$$7)\int e^{p\,Cos\,r\,x}\,\frac{Sin\,(p\,Sin\,r\,x)\,.\,Sin\,r\,x}{p^2 - 2\,p\,q\,Cos\,r\,x + q^2}\,dx = \frac{\pi}{2\,p\,q\,r}\,(e^q - 1)\,[p^2 > q^2] \text{ (VIII, 559*).}$$

$$8)\int e^{p\,Cos\,r\,x}\,\frac{Cos\,(p\,Sin\,r\,x)}{p^2 - 2\,p\,q\,Cos\,r\,x + q^2}\,dx = \frac{1}{p^2 - q^2}\,\frac{\pi}{r}\,e^q\,[p^2 > q^2] \text{ (VIII, 560).}$$

$$9)\int e^{p\,Cos\,r\,x}\,\frac{Sin\,x}{p^2 - 2\,p\,q\,Cos\,x + q^2}\,Sin\,(p\,Sin\,r\,x)\,dx = \frac{\pi}{2pq}\,(e^{q\,r} - 1) \text{ (VIII, 634).}$$

$$10)\int e^{p\,Cos\,r\,x}\,\frac{p - q\,Cos\,x}{p^2 - 2\,p\,q\,Cos\,x + q^2}\,Cos\,(p\,Sin\,r\,x)\,dx = \frac{\pi}{2p}\,(e^{q\,r} + 1) \text{ (VIII, 634).}$$

$$11)\int \frac{e^{p\,Sin\,r\,x} - e^{-p\,Sin\,r\,x}}{p^2 - 2\,p\,q\,Cos\,x + q^2}\,Sin\,x\,.\,Sin\,(p\,Cos\,r\,x)\,dx = \frac{\pi}{p\,q}\,(Cos\,q\,r - 1) \text{ (VIII, 634).}$$

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12) $\int \frac{e^{p\,Sin\,r\,x} - e^{-p\,Sin\,r\,x}}{p^2 - 2pq\,Cos\,x + q^2}\,Sin\,x\,.\,Cos\,(p\,Cos\,r\,x)\,dx = \frac{\pi}{pq}\,Sin\,q\,r$ (VIII, 634).

13) $\int \frac{e^{p\,Sin\,r\,x} + e^{-p\,Sin\,r\,x}}{p^2 - 2pq\,Cos\,x + q^2}\,(p - q\,Cos\,x)\,Sin\,(p\,Cos\,r\,x)\,dx = \frac{\pi}{q}\,Sin\,q\,r$ (VIII, 634).

14) $\int \frac{e^{p\,Sin\,r\,x} + e^{-p\,Sin\,r\,x}}{p^2 - 2pq\,Cos\,x + q^2}\,(p - q\,Cos\,x)\,Cos\,(p\,Cos\,r\,x)\,dx = \frac{\pi}{p}\,(Cos\,q\,r + 1)$ (VIII, 633).

15) $\int e^{q\,Cos\,x}\,\frac{Sin\,r\,x}{1 - 2p^r\,Cos\,r\,x + p^{2r}}\,Sin\,(q\,Sin\,x)\,dx = \frac{\pi}{2pr}\sum_1^\infty \frac{1}{1^{n\,r/1}}\,(pq)^{n\,r}$ (VIII, 635).

16) $\int e^{q\,Cos\,x}\,\frac{1 - p^r\,Cos\,r\,x}{1 - 2p^r\,Cos\,r\,x + p^{2r}}\,Cos\,(q\,Sin\,x)\,dx = \frac{\pi}{2}\left\{2 + \sum_1^\infty \frac{1}{1^{n\,r/1}}\,(pq)^{n\,r}\right\}$ (VIII, 635).

17) $\int \frac{Sin\,\frac{3}{2}x - p\,e^{Cos\,x}\,Sin\,(\frac{5}{2}x - Sin\,x)}{1 - 2p\,e^{Cos\,x}\,Cos\,(x - Sin\,x) + p^2\,e^{2\,Cos\,x}}\,Sin\,\frac{1}{2}x\,dx = \frac{\pi}{2}\sum_1^\infty \frac{n^{n-1}}{1^{n/1}}\,p^n$ (IV, 396).

F. Exponent.; Circ. Dir. TABLE 279. Lim. $a\pi$ et $b\pi$.

1) $\int_0^{\frac{\pi}{4}} e^{Tg\,x}\,\frac{Tg\,x}{(Sin\,x + Cos\,x)^2}\,dx = \frac{1}{2}e - 1$ V. T. 80, N. 6.

2) $\int_{-\frac{1}{4}\pi}^{\frac{1}{4}\pi} e^{-q\,Sin\,x.\sqrt{(2\,Cos\,2\,x)}}\,Cos\{q\,Cos\,x.\sqrt{2\,Cos\,2\,x} - x\}\,\frac{dx}{\sqrt{2\,Cos\,2\,x}} = \pi\,Cos\,q$ (IV, 516*).

3) $\int_{\frac{\pi}{4}}^{\frac{\pi}{2}} e^{Cot\,x}\,\frac{dx}{(Sin\,x + Cos\,x)^2\,Tg\,x} = \frac{1}{2}e - 1$ V. T. 80, N. 6.

4) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-px}\,Cos^{2a}\,x\,dx = \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)(..p^2+4a^2)}\,\frac{1}{p}\,(e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi})$ V. T. 279, N. 19.

5) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-px}\,Cos^{2a+1}\,x\,dx = \frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}\,(e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi})$ V. T. 279, N. 20.

6) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(2q+r)x\,i}\,Cos^r\,x\,dx = \frac{1}{2^r}\,Sin\,q\pi\,\frac{\Gamma(q)\,\Gamma(r+1)}{\Gamma(q+r+1)}$ (VIII, 429).

7) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{-(q+1)x\,i - \frac{1}{2}r\,e^{-x\,i}\,Sec\,x}\,Cos^{q-1}\,x\,dx = \frac{\pi\,r^q}{2^{q-1}\,e^r\,\Gamma(q+1)}$ (IV, 396*).

8) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(2p-q+1)x\,i + 2r\,Cos\,x\,.\,e^{x\,i}}\,Cos^{q-1}\,x\,dx = \frac{\pi}{2^{q-1}}\,\frac{\Gamma(q)}{\Gamma(p)\,\Gamma(q-p+1)}\sum_0^\infty \frac{q^{n/1}}{p^{n/1}}\,\frac{r^n}{1^{n/1}}$

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9) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{px}\left(e^{q \, Cos\, x}+e^{-q\, Cos\, x}\right) dx = 2\left(e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}\right)\sum_0^\infty \frac{q^{2n-2}}{(p^2+2^2)(p^2+4^2)\ldots(p^2+4n^2)}$

10) $\int_{-\pi}^{\pi} e^{s\, Cos\, x+(a-1)xi+qe^{xi}}\, Cos\,(s\, Sin\, x)\, dx = \frac{\pi s^{a-1}}{1^{a-1/1}}\sum_0^\infty \frac{(2q)^n}{1^{n/1}p^{n/1}}$

Sur 8) à 10) voyez Russell, Phil. Trans. 1855.

11) $\int_{-\pi}^{\pi}\frac{(1-e^{-xi})(p+e^{-xi})}{1-qe^{p+Cos\, x}e^{(x-Sin\, x)i}}dx = 2\pi\left\{p+\sum_1^\infty \frac{n^{n-1}}{1^{n/1}}q^n e^{np}\right\}$ (IV, 397).

12) $\int_{-\pi}^{\pi}\frac{e^{-\frac{1}{2}xi}\, Sin\,\frac{1}{2}x}{1-qe^{p+Cos\, x}e^{(x-Sin\, x)i}}dx = \frac{\pi}{i}\left\{-p+\sum_1^\infty \frac{n^{n-1}}{1^{n/1}}q^n e^{np}\right\}$ (IV, 398*).

13) $\int_{-\pi}^{\pi}\frac{e^{q\, Sin\, x}\, Sin\,\{(2a+1)x\}-Sin\,\{(2a+1)x-q\, Cos\, x\}}{e^{q\, Sin\, x}-2\, Cos\,(q\, Cos\, x)+e^{-q\, Sin\, x}}dx = \left(\frac{q}{2\pi}\right)^{2a+1}\sum_1^b n^{2a}$ (IV, 398).

14) $\int_{-\pi}^{\pi}\frac{e^{q\, Sin\, x}\, Sin\left\{x+\frac{aq}{4\pi^2}Sin\, 2x\right\}-Sin\left\{x+\frac{aq}{4\pi^2}Sin\, 2x-q\, Cos\, x\right\}}{e^{q\, Sin\, x}-2\, Cos\,(q\, Cos\, x)+e^{-q\, Sin\, x}}e^{\frac{aq}{4\pi^2}Cos\, 2x}dx =$

$= \frac{2\pi}{q}\left\{\frac{1}{2}+\sum_1^b e^{n^2 a}\right\}$ Dans 13) et 14) on a $b = \mathcal{E}\frac{2\pi}{q}$ (IV, 398).

15) $\int_0^{2\pi} e^{pxi}\, Sin\, qx\, dx = 0\; [p \gtrless q] = \pi i\; [p=q]$ (VIII, 335).

16) $\int_0^{2\pi} e^{pxi}\, Cos\, qx\, dx = 0\; [p \gtrless q] = \pi\; [p=q]$ (VIII, 335).

17) $\int_{-b\pi}^{c\pi} e^{-px}\, Sin^{2a}x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)}\frac{1}{p}\left(e^{bp\pi}-e^{-cp\pi}\right)$ (VIII, 250).

18) $\int_{-b\pi}^{c\pi} e^{-px}\, Sin^{2a+1}x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}}\left\{e^{bp\pi}\, Cos\, b\pi-e^{-cp\pi}\, Cos\, c\pi\right\}$

(VIII, 250).

19) $\int_{(\frac{1}{2}-b)\pi}^{(c+\frac{1}{2})\pi} e^{-px}\, Cos^{2a}x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\ldots(4a^2+p^2)}\frac{1}{p}\left\{e^{(b-\frac{1}{2})p\pi}-e^{-(c+\frac{1}{2})p\pi}\right\}$ (VIII, 250).

20) $\int_{(\frac{1}{2}-b)\pi}^{(c+\frac{1}{2})\pi} e^{-px}\, Cos^{2a+1}x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\ldots\{(2a+1)^2+p^2\}}\left\{e^{-(c+\frac{1}{2})p\pi}\, Cos\, c\pi-\right.$

$\left.-e^{(b-\frac{1}{2})p\pi}\, Cos\, b\pi\right\}$ (VIII, 250).

$$1)\int_0^1 q^x \,Sin\, p x\, dx = \frac{-pq Cos p + q Sin p . lq + p}{p^2+(lq)^2} \quad \text{(VIII, 248).}$$

$$2)\int_0^1 q^x \,Cos\, p x\, dx = \frac{pq Sin p + q Cos p . lq - lq}{p^2+(lq)^2} \quad \text{(VIII, 249).}$$

$$3)\int_0^1 \frac{e^{\frac{\pi}{p}\sqrt{(1-x^2)}} - e^{-\frac{\pi}{p}\sqrt{(1-x^2)}}}{e^{\frac{\pi}{p}\sqrt{(1-x^2)}} + e^{-\frac{\pi}{p}\sqrt{(1-x^2)}} + 2\, Cos\left(\frac{\pi}{p}x\right)}\, dx = \frac{\pi^2}{16p} \quad \text{V. T. 275, N. 18.}$$

$$4)\int_0^1 \frac{Sin\left\{\frac{\pi}{p}\sqrt{1-x^2}\right\}}{e^{\frac{\pi}{p}x} + e^{-\frac{\pi}{p}x} + 2\, Cos\left\{\frac{\pi}{p}\sqrt{1-x^2}\right\}}\, dx = \frac{\pi^2}{16p} \quad \text{V. T. 275, N. 15.}$$

$$5)\int_{\frac{\pi}{2}} e^{-px}\, Sin^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\,\frac{1}{p}\, e^{-\frac{1}{2}p\pi}\left\{1+\frac{p^2}{1.2}+\frac{p^2(2^2+p^2)}{1^{4/1}}+\dots+\right.$$
$$\left.+\frac{p^2(2^2+p^2)\dots\{(2a-2)^2+p^2\}}{1^{2a/1}}\right\} \quad \text{(VIII, 252).}$$

$$6)\int_{\frac{\pi}{2}}^{\infty} e^{-px}\, Sin^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\, p e^{-\frac{1}{2}p\pi}\left\{1+\frac{1^2+p^2}{1.2.3}+\right.$$
$$\left.+\frac{(1^2+p^2)(3^2+p^2)}{1^{5/1}}+\dots+\frac{(1^2+p^2)(3^2+p^2)\dots\{(2a-1)^2+p^2\}}{1^{2a+1/1}}\right\} \quad \text{(VIII, 252).}$$

$$7)\int_{\frac{\pi}{2}}^{\infty} e^{-px}\, Cos^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\,\frac{1}{p}\, e^{-\frac{1}{2}p\pi} \quad \text{(VIII, 249).}$$

$$8)\int_{\frac{\pi}{2}}^{\infty} e^{-px}\, Cos^{2a+1} x\, dx = \frac{-1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\, e^{-\frac{1}{2}p\pi} \quad \text{(VIII, 250).}$$

$$9)\int_{-\frac{\pi}{2}}^{\infty} e^{-px}\, Cos^{2a} x\, dx = \frac{1^{2a/1}}{(2^2+p^2)(4^2+p^2)\dots(4a^2+p^2)}\,\frac{1}{p}\, e^{\frac{1}{2}p\pi} \quad \text{(VIII, 699*).}$$

$$10)\int_{-\frac{\pi}{2}}^{\infty} e^{-px}\, Cos^{2a+1} x\, dx = \frac{1^{2a+1/1}}{(1^2+p^2)(3^2+p^2)\dots\{(2a+1)^2+p^2\}}\, e^{\frac{1}{2}p\pi} \quad \text{(VIII, 699*).}$$

F. Exponent.; Circ. Dir. } Intégr. Lim. (Lim. $k=\infty$.) TABLE 281. Limites diverses.

$$1)\int_0^{\infty} e^{-\frac{1}{k}x}\, Sin\, qx . Sin\, rx\, dx = \frac{1}{2}\,\frac{k}{1+(q-r)^2k^2} \quad \text{(IV, 375).}$$

$$2)\int_0^{\infty} e^{-\frac{1}{k}x}\, Cos\, qx . Cos\, rx\, dx = \frac{1}{2}\,\frac{k}{1+(q-r)^2k^2} \quad \text{(IV, 375).}$$

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3) $\int_0^\infty e^{-px} \frac{Sin\{(2k+1)x\}}{Sin\,x}\,dx = \frac{\pi}{2}\,\frac{1+e^{-p\pi}}{1-e^{-p\pi}}$ (IV, 382).

4) $\int_0^\infty e^{-px} \frac{Cos\{(2k+1)x\}}{Sin\,x}\,dx = (-1)^p\,\pi\,\frac{e^{-\frac{1}{2}p\pi}}{1-e^{-p\pi}}$ (IV, 382).

5) $\int_0^\infty e^{-px} \frac{Cos\{(2k+1)x\}}{Sin\,x}\,Sin\,x\,dx = \frac{\pi e^{-\frac{1}{2}p\pi}}{1+e^{-p\pi}}$ (IV, 382).

6) $\int_0^{\frac{\pi}{2}} \frac{Sin\,2x\,.\,Sin^{4k+2}x - Sin^2 x\,.\,Sin\{(4k+2)x\} + Sin\,4kx}{1-2\,Cos\,2x\,.\,Sin^2 x + Sin^4 x}\;\frac{dx}{(e^{2\pi\,Cot\,x}-1)\,Sin^{4k+2}x} = \frac{\pi-2}{16}$

Catalan, C. R. 54, 1059.

7) $\int_0^a e^{p\,Cos\,x}\,Sin(p\,Sin\,x)\,\frac{Cos\,kx}{Sin\,x}\,dx = 0\;[0<a<\infty]$ (VIII, 378).

8) $\int_0^a e^{p\,Cos\,x}\,Cos(p\,Sin\,x)\,\frac{Cos\,2kx}{Cos\,x}\,dx = 0\left[0<a<\frac{1}{2}\pi\right], = \infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 379).

9) $\int_0^a e^{p\,Cos\,x}\,Cos(p\,Sin\,x).Cos\{(4k\pm1)x\}\,\frac{dx}{Cos\,x} = \pm\frac{\pi}{2}\,Cos\,p\left[a=\frac{\pi}{2}\right], = \pm\pi\,Cos\,p\left[\frac{\pi}{2}<a<\frac{3\pi}{2}\right], =$
$= \pm\frac{3\pi}{2}\,Cos\,p\left[a=\frac{3\pi}{2}\right], = \pm\frac{2b-1}{2}\,\pi\,Cos\,p\left[a=\frac{2b-1}{2}\,\pi\right], = \pm\,b\,\pi\,Cos\,p\left[a=\frac{2b-1}{2}\,\pi+\right.$
$\left.+c,\,c<\pi\right]$ (VIII, 379).

1) $\int_0^\infty e^{-px}\,Arctg\,\frac{x}{q}\,dx = \frac{1}{p}\left\{Ci(pq).Sin\,pq - Si(pq).Cos\,pq + \frac{\pi}{2}\,Cos\,pq\right\}$ (VIII, 598).

2) $\int_0^\infty e^{-px}\,Arccot\,\frac{x}{q}\,dx = \frac{1}{p}\left\{\pi\,Sin^2\frac{1}{2}pq - Ci(pq).Sin\,pq + Si(pq).Cos\,pq\right\}$ (VIII, 598).

3) $\int_0^\infty Arctg\,\frac{x}{p}\;\frac{dx}{e^{2\pi qx}-1} = \frac{1}{2q}\left\{l\Gamma(pq+1) - \frac{1}{2}\,l2pq\pi + pq(1-lpq)\right\}$ V. T. 354, N. 5.

4) $\int_0^\infty Arctg\,x\,\frac{e^{\frac{1}{4}\pi x}-e^{-\frac{1}{4}\pi x}}{(e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x})^2}\,dx = \frac{\sqrt{2}}{\pi}\left\{\pi - l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 97, N. 3.

5) $\int_0^\infty Arctg\,x\,\frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{(e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x})^2}\,dx = \frac{1}{\pi}\,l2$ V. T. 97, N. 2.

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6) $\int_0^\infty Arctg\, x \frac{e^{\pi x}-e^{-\pi x}}{(e^{\pi x}+e^{-\pi x})^2} dx = \frac{4-\pi}{4\pi}$ V. T. 97, N. 1.

7) $\int_0^\infty Arctg\frac{x}{q} \frac{e^{\pi x}-e^{-\pi x}}{(e^{\pi x}+e^{-\pi x})^2} dx = \frac{1}{4\pi}\left\{Z'\left(\frac{2q+3}{4}\right)-Z'\left(\frac{2q+1}{4}\right)\right\}$ V. T. 97, N. 4.

8) $\int_0^\infty Arctg\frac{x}{q} \frac{e^{px}-e^{-px}}{(e^{px}+e^{-px})^2} dx = \frac{\pi}{p}\sum_1^\infty \frac{(-1)^{n-1}}{2pq+(2n-1)\pi}$ V. T. 97, N. 5.

9) $\int_0^\infty \{e^x Arctg(e^{-x})-e^{-x} Arctg(e^x)\}\frac{dx}{e^x-e^{-x}} = \frac{1}{4}\pi l2$ Cauchy, A. M. 17, 84.

10) $\int_{-\infty}^\infty Arctg(e^{-x})\frac{dx}{(e^{px}+e^{-px})^q} = \frac{\sqrt{\pi^3}}{2^{2q+2}p}\frac{\Gamma(q)}{\Gamma(q+\frac{1}{2})}$ (VIII, 422).

F. Exponent.; Autre Fonction. TABLE 283. Lim. 0 et ∞.

1) $\int e^{-2x} li(e^x)\, dx = 0$ V. T. 283, N. 3.

2) $\int e^{px} li(e^{-x})\, dx = \frac{1}{p} l(1-p)$ (VIII, 460).

3) $\int e^{-px} li(e^x)\, dx = -\frac{1}{p} l(p-1)$ (VIII, 461).

4) $\int e^{-px} li(e^{-x})\, dx = -\frac{1}{p} l(1+p)$ $[p \geqq -1]$ (VIII, 460).

5) $\int e^{-px^2} li(e^{-x^2})\, dx = -\sqrt{\frac{\pi}{p}}\,.\, l\{\sqrt{p}+\sqrt{1+p}\}$ $[p>0]$ (VIII, 460).

6) $\int e^{px^2} li(e^{-x^2})\, dx = -\sqrt{\frac{\pi}{p}}. Arcsin(\sqrt{p})$ $[p<1]$ (VIII, 460).

F. Logar.; Circ. Dir. TABLE 284. Lim. 0 et 1.

1) $\int Sin px\,.\,lx\,.\,dx = \sum_0^\infty (-1)^{n-1}\frac{p^{2n+1}}{(2n+1)^2\, 1^{2n+1/1}}$ (VIII, 516).

2) $\int Cos px\,.\,lx\,.\,dx = -\frac{1}{p} Si(p)$ (VIII, 516).

3) $\int Sin(q\,lx)\, dx = -\frac{q}{1+q^2}$ V. T. 261, N. 1.

4) $\int Cos(q\,lx)\, dx = \frac{1}{1+q^2}$ V. T. 261, N. 2.

5) $\int Sin(q\,lx)\frac{dx}{lx} = Arctg\, q$ V. T. 365, N. 1.

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6) $\int Sin(p\,lx).Sin(q\,lx)\frac{dx}{lx}=\frac{1}{4}\,l\frac{1+(p-q)^2}{1+(p+q)^2}$ V. T. 284, N. 3.

7) $\int Sin(p\,lx).Cos(q\,lx)\frac{dx}{lx}=\frac{1}{2}\,Arctg\left(\frac{2p}{1-p^2+q^2}\right)$ V. T. 284, N. 4.

8) $\int Sin^2(p\,lx)\frac{dx}{lx}=-\frac{1}{4}\,l(1+4p^2)$ V. T. 365, N. 4.

9) $\int\{Cos(p\,lx)-Cos(q\,lx)\}\frac{dx}{lx}=\frac{1}{2}\,l\frac{1+p^2}{1+q^2}$ V. T. 284, N. 6.

10) $\int Sin(p\,lx).\,ll\frac{1}{x}.dx=\frac{1}{1+p^2}\left\{Arctg\,p-pA-\frac{1}{2}p\,l(1+p^2)\right\}$ V. T. 467, N. 1.

11) $\int Cos(p\,lx).\,llx.dx=-\frac{1}{1+p^2}\left\{\frac{1}{2}\,l(1+p^2)+p\,Arctg\,p+A\right\}$ V. T. 467, N. 2.

12) $\int Sin^2(p\,lx).\,llx.dx=\frac{1}{1+4p^2}\left\{2p\,Arctg\,2p+\frac{1}{2}\,l(1+4p^2)-4p^2A\right\}$ V. T. 467, N. 3.

13) $\int Sin(p\,lx).\sqrt{l\frac{1}{x}}.dx=-\frac{1}{4}\sqrt{\{-1+3p^2+\sqrt{1+p^2}^3\}}.\sqrt{\frac{2\pi}{(1+p^2)^3}}$ V. T. 394, N. 1.

14) $\int Cos(p\,lx).\sqrt{l\frac{1}{x}}.dx=\frac{1}{4}\sqrt{\{1-3p^2+\sqrt{1+p^2}^3\}}.\sqrt{\frac{2\pi}{(1+p^2)^3}}$ V. T. 394, N. 4.

15) $\int Sin(p\,lx)\frac{dx}{\sqrt{l\frac{1}{x}}}=-\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{1+p^2}-1}{1+p^2}\right\}}$ V. T. 395, N. 1.

16) $\int Cos(p\,lx)\frac{dx}{\sqrt{l\frac{1}{x}}}=-\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{1+p^2}+1}{1+p^2}\right\}}$ V. T. 395, N. 2.

17) $\int Sin\left(2p\sqrt{l\frac{1}{x}}\right)dx=pe^{-p^2}\sqrt{\pi}$ V. T. 362, N. 1.

18) $\int Cos\left(p\sqrt{l\frac{1}{x}}\right)dx=\frac{1}{4}-\frac{p}{4}\sum_0^\infty(-1)^n\frac{p^{2n+1}}{(n+1)^{n+1/1}}$ V. T. 362, N. 2.

19) $\int Tg\left(p\sqrt{l\frac{1}{x}}\right)dx=2p\sqrt{\pi}.\sum_1^\infty(-1)^n\,n\,e^{-n^2p^2}$ V. T. 362, N. 15.

20) $\int Cot\left(p\sqrt{l\frac{1}{x}}\right)dx=-2p\sqrt{\pi}.\sum_1^\infty n\,e^{-n^2p^2}$ V. T. 362, N. 16.

21) $\int Cosec\left(2p\sqrt{l\frac{1}{x}}\right)dx=-2p\sqrt{\pi}.\sum_1^\infty(2n-1)\,e^{-(2n-1)^2p^2}$ V. T. 362, N. 17.

22) $\int Sin\left(p\sqrt{l\frac{1}{x}}\right)\frac{dx}{lx}=\frac{1}{2}p\sqrt{\pi}.\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)\,1^{n/1}}\left(\frac{p}{2}\right)^{2n}$ V. T. 365, N. 21.

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23) $\int Cos\left(2p\sqrt{l\frac{1}{x}}\right)\frac{dx}{\sqrt{l\frac{1}{x}}}=e^{-p^2}\sqrt{\pi}$ V. T. 395, N. 3.

24) $\int l\,Sin\left(q\,l\frac{1}{x}\right)dx=-\frac{1}{4}l2-\sum_1^\infty\frac{1}{n}\,\frac{1}{1+4n^2q^2}$ V. T. 467, N. 4.

25) $\int l\,Cos\left(q\,l\frac{1}{x}\right)dx=-\frac{1}{4}l2-\sum_1^\infty\frac{(-1)^n}{n}\,\frac{1}{1+4n^2q^2}$ V. T. 467, N. 5.

26) $\int l\,Tg\left(q\,l\frac{1}{x}\right)dx=-2\sum_1^\infty\frac{1}{2n-1}\,\frac{1}{1+4(2n-1)^2q^2}$ V. T. 467, N. 6.

F. Log. en num. $(l\,Sin\,a\,x)^b$; Circ. Dir. entière. TABLE 285. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Sin\,x.dx=-\frac{\pi}{4}l2-\frac{1}{2}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 204, N. 2.

2) $\int l\,Sin\,x.Cos^a 2x.Sin\,2x.dx=\frac{-1}{4(a+1)}\left\{l2+\sum_0^a\frac{1}{n+1}\right\}$ V. T. 35, N. 11.

3) $\int l(2\,Sin^2x).Tg\,2x.dx=-\frac{1}{12}\pi^2$ V. T. 114, N. 14.

4) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}+x\right)dx=-\frac{1}{12}\pi^2$ V. T. 294, N. 4.

5) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}-x\right)dx=-\frac{1}{24}\pi^2$ V. T. 294, N. 5.

6) $\int l\,Sin\,2x.Tg\left(\frac{\pi}{4}+x\right).Sin\,2x.dx=\frac{6-\pi^2}{12}$ V. T. 108, N. 7.

7) $\int l\,Sin\,2x.Tg^2\left(\frac{\pi}{4}+x\right).Cos\,2x.dx=\frac{3-\pi^2}{6}$ V. T. 108, N. 9.

8) $\int(l\,Sin\,2x)^3.Tg\left(\frac{\pi}{4}+x\right)dx=-\frac{1}{30}\pi^4$ V. T. 109, N. 11.

9) $\int(l\,Sin\,2x)^3.Tg\left(\frac{\pi}{4}-x\right)dx=-\frac{7}{240}\pi^4$ V. T. 109, N. 9.

10) $\int(l\,Sin\,2x)^5.Tg\left(\frac{\pi}{4}+x\right)dx=-\frac{4}{63}\pi^6$ V. T. 109, N. 21.

11) $\int(l\,Sin\,2x)^5.Tg\left(\frac{\pi}{4}-x\right)dx=-\frac{31}{504}\pi^6$ V. T. 109, N. 20.

12) $\int (l\,Sin\,2\,x)^{2\,a}.\,Tg\left(\frac{\pi}{4}-x\right)dx = \frac{1^{2\,a/1}}{2^{2\,a+1}}(2^{2\,a}-1)\sum_1^\infty \frac{1}{n^{2\,a+1}}$ V. T. 110, N. 1.

13) $\int (l\,Sin\,2\,x)^{2\,a-1}.\,Tg\left(\frac{\pi}{4}+x\right)dx = -\frac{1}{8\,a}(2\,\pi)^{2\,a}\,B_{2\,a-1}$ V. T. 110, N. 5.

14) $\int (l\,Sin\,2\,x)^{2\,a-1}.\,Tg\left(\frac{\pi}{4}-x\right)dx = \frac{1-2^{2\,a-1}}{4\,a}\,\pi^{2\,a}\,B_{2\,a-1}$ V. T. 110, N. 2.

15) $\int (l\,Sin\,2\,x)^{a-1}.\,Tg\left(\frac{\pi}{4}+x\right)dx = (-1)^{a-1}\,1^{a-1/1}\,\frac{1}{2}\sum_0^\infty \frac{1}{(1+n)^a}$ V. T. 110, N. 6.

16) $\int (l\,Sin\,2\,x)^{a-1}.\,Tg\left(\frac{\pi}{4}-x\right)dx = (-1)^{a-1}\,1^{a-1/1}\,\frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(1+n)^a}$ V. T. 110, N. 3.

17) $\int (l\,Sin\,2\,x)^{a-1}.\,Tg\left(\frac{\pi}{4}+x\right).\,Sin^q 2\,x.dx = \frac{1}{2}(-1)^{a-1}\,1^{a-1/1}\sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

18) $\int (l\,Sin\,2\,x)^{a-1}.\,Tg\left(\frac{\pi}{4}-x\right).\,Sin^q 2\,x.dx = \frac{1}{2}(-1)^{a-1}\,1^{a-1/1}\sum_0^\infty \frac{(-1)^n}{(q+n+1)^a}$ V. T. 110, N. 4.

F. Log. en num. $(l\,Cos\,a\,x)^b$, $(l\,Tang\,a\,x)^b$; Circ. Dir. entière. TABLE 286. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Cos\,x.dx = -\frac{1}{4}\pi\,l\,2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2\,n+1)^2}$ V. T. 285, N. 1 et T. 286, N. 11.

2) $\int l\,Cos\,x\,.\,Cos^{p-1}2\,x\,.\,Tg\,2\,x\,.dx = \frac{1}{8(1-p)}\left\{Z'\left(\frac{p+1}{2}\right) - Z'\left(\frac{p}{2}\right)\right\}$ V. T. 34, N. 7.

3) $\int l(2\,Cos^2 x).\,Tg\,2\,x.dx = \frac{1}{24}\pi^2$ V. T. 114, N. 1.

4) $\int l\,Cos\,2\,x\,.\,Tg\,x.dx = -\frac{1}{24}\pi^2$ V. T. 286, N. 3.

5) $\int (l\,Cos\,2\,x)^3.\,Tg\,x.dx = -\frac{7}{240}\pi^4$ V. T. 109, N. 9.

6) $\int (l\,Cos\,2\,x)^5.\,Tg\,x.dx = -\frac{31}{504}\pi^6$ V. T. 109, N. 20.

7) $\int (l\,Cos\,2\,x)^{2\,a-1}.\,Tg\,x.dx = \frac{1-2^{2\,a-1}}{4\,a}\,\pi^{2\,a}\,B_{2\,a-1}$ V. T. 110, N. 2.

8) $\int (l\,Cos\,2\,x)^{2\,a}.\,Tg\,x.dx = \frac{2^{2\,a}-1}{2^{2\,a+1}}\,1^{2\,a/1}\sum_1^\infty \frac{1}{n^{2\,a+1}}$ V. T. 110, N. 1.

9) $\int (l\,Cos\,2\,x)^{a-1}.Tg\,x.dx = (-1)^{a-1}1^{a-1/1}\sum_0^\infty \frac{(-1)^n}{(1+n)^a}$ V. T. 110, N. 3.

10) $\int (l\,Cos\,2\,x)^{a-1}.Tg\,x.Cos^q 2\,x.dx = \frac{1}{2}(-1)^{a-1}1^{a-1/1}\sum_0^\infty \frac{(-1)^n}{(q+n+1)^a}$ V. T. 110, N. 4.

11) $\int l\,Tg\,x.dx = -\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 206, N. 1.

12) $\int l\,Tg\,x.Tg\,x.dx = -\frac{1}{48}\pi^2$ V. T. 108, N. 1.

13) $\int l\,Tg\,x.Sin\,2\,x.dx = -\frac{1}{2}l2$ (IV, 433*). 14) $\int l\,Tg\,x.Tg\,2\,x.dx = -\frac{1}{16}\pi^2$ V. T. 115, N. 15.

15) $\int l\,Tg\,x.Cos\,2\,x.Sin^{2p-1}2\,x.dx = -2^{2p-4}\frac{\{\Gamma(p)\}^2}{p\,\Gamma(2p)}$ V. T. 112, N. 8.

16) $\int (l\,Tg\,x)^2\,dx = \frac{1}{16}\pi^3$ V. T. 109, N. 3.

17) $\int (l\,Tg\,x)^3.Tg\,x.dx = -\frac{7}{1920}\pi^4$ V. T. 109, N. 9.

18) $\int (l\,Tg\,x)^3.Tg\,2\,x.dx = -\frac{1}{128}\pi^4$ V. T. 109, N. 13.

19) $\int (l\,Tg\,x)^4\,dx = \frac{5}{64}\pi^5$ V. T. 109, N. 17.

20) $\int (l\,Tg\,x)^6\,dx = \frac{61}{256}\pi^7$ V. T. 109, N. 25.

21) $\int (l\,Tg\,x)^{q-1}\,dx = Cos\,q\pi.\Gamma(q)\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^q}$ (VIII, 577).

22) $\int (l\,Tg\,x)^{a-1}.Tg\,q\,x.dx = (-1)^{a-1}1^{a-1/1}\sum_0^\infty \frac{(-1)^n}{(q+1+2n)^a}$ (VIII, 577).

F. Log. en num.; Circ. Dir. ent. } Autre forme. TABLE 287. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l(1+Tg\,x)\,dx = \frac{\pi}{8}l2$ (VIII, 322).

2) $\int l(1-Tg\,x)\,dx = \frac{\pi}{8}l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 17.

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3) $\int l(1+Cot\,x)\,dx = \frac{\pi}{8} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 3.

4) $\int l(Cot\,x - 1)\,dx = \frac{\pi}{8} l2$ V. T. 115, N. 5.

5) $\int l(Tg\,x + Cot\,x)\,dx = \frac{\pi}{2} l2$ V. T. 115, N. 7.

6) $\int l(Cot\,x - Tg\,x)\,dx = \frac{\pi}{4} l2$ V. T. 115, N. 9.

7) $\int l(\sqrt{Tg\,x} + \sqrt{Cot\,x})\,dx = \frac{\pi}{8} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 4.

8) $\int l(\sqrt{Cot\,x} - \sqrt{Tg\,x})\,dx = \frac{\pi}{8} l2 + \frac{1}{2}\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 115, N. 6.

9) $\int l(1 - Tg^2 x)\,dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 26.

10) $\int l(Cot^2 x - 1)\,dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

11) $\int l(Cot^2 x - Tg^2 x)\,dx = \frac{3\pi}{4} l2$ V. T. 115, N. 12.

12) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right)dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 114, N. 26.

13) $\int l\left(\frac{Cos\,2x}{Sin^2 x}\right)dx = \frac{\pi}{4} l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 10.

14) $\int l\left(\frac{Cos\,x + Sin\,x}{Cos\,x - Sin\,x}\right)dx = \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 115, N. 17.

15) $\int l\,Tg\,x \,.\, (l\,Cos\,2x)^2\,Tg\,2x \,.\, dx = -\frac{1}{192}\pi^4$ V. T. 311, N. 6.

16) $\int l\,Tg\,x \,.\, (l\,Cos\,2x)^4 \,.\, Tg\,2x \,.\, dx = -\frac{1}{160}\pi^6$ V. T. 311, N. 8.

17) $\int l\,Tg\,x \,.\, (l\,Cos\,2x)^6 \,.\, Tg\,2x \,.\, dx = -\frac{17}{896}\pi^8$ V. T. 311, N. 10.

18) $\int l\,Tg\,x \,.\, (l\,Cos\,2x)^{2a} \,.\, Tg\,2x \,.\, dx = -\frac{2^{2a+2}-1}{16(a+1)(2a+1)}\pi^{2a+2} B_{2a+1}$ V. T. 311, N. 11.

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19) $\int l\,Tg\,x.(l\,Cos\,2\,x)^{2a-1}.Tg\,2\,x.dx = \frac{2^{2a+1}-1}{2^{2a+3}}\, 1^{2a-1/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 311, N. 12.

20) $\int l\,Tg\,x.(l\,Cos\,2\,x)^{a-1}.Tg\,2\,x.dx = (-1)^{a-1}\frac{1^{a-1/1}}{4} \sum_0^\infty \frac{1}{(1+2n)^{a+1}}$ V. T. 294, N. 20.

F. Log. en num. $l\,Sin\,a\,x$, $l\,Cos\,a\,x$; Circ. Dir. rat. en dén. monôme. TABLE 288. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Sin\,x \frac{Sin^{2a}x}{Cos^{2a+2}x}dx = -\frac{1}{2a+1}\left\{\frac{1}{2}l\,2 + (-1)^a\frac{\pi}{4} + \sum_0^{a-1}\frac{(-1)^n}{2a-2n-1}\right\}$ V. T. 34, N. 2.

2) $\int l\,Sin\,x \frac{Sin^{2a-1}x}{Cos^{2a+1}x}dx = \frac{1}{4a}\left\{-l\,2 + (-1)^a l\,2 + \sum_0^{a-1}\frac{(-1)^n}{a-n}\right\}$ V. T. 34, N. 3.

3) $\int l\,Sin\,x \frac{Sin\,2\,x}{Cos^{p+1}2\,x}dx = \frac{1}{4p}\left\{A + Z'(1-p)\right\}$ $[-1<p<0]$ V. T. 34, N. 7.

4) $\int l\,Cos\,x \frac{dx}{Sin\,2\,x} = -\frac{1}{96}\pi^2$ V. T. 286, N. 12.

5) $\int l\,Cos\,2\,x \frac{dx}{Tg\,x} = -\frac{1}{12}\pi^2$ V. T. 286, N. 3.

6) $\int l\,Cos\,2\,x \frac{Sin^2 x}{Tg\,x}dx = -\frac{1}{4}$ V. T. 288, N. 5, 8.

7) $\int l\,Cos\,2\,x \frac{Cos^2 x}{Tg\,x}dx = \frac{1}{4} - \frac{1}{12}\pi^2$ V. T. 288, N. 5, 8.

8) $\int l\,Cos\,2\,x \frac{Cos\,2x}{Tg\,x}dx = \frac{1}{12}(6-\pi^2)$ V. T. 108, N. 7.

9) $\int l\,Cos\,2\,x \frac{Sin\,2x}{Tg^2 x}dx = \frac{1}{6}(3-\pi^2)$ V. T. 108, N. 9.

10) $\int l\,Cos\,x \frac{Sin^{2a}x}{Cos^{2a+2}x}dx = \frac{1}{2a+1}\left\{-\frac{1}{2}l\,2 + (-1)^{a+1}\frac{\pi}{4} + \sum_0^{a}\frac{(-1)^{n-1}}{2a-2n+1}\right\}$ V. T. 34, N. 2.

11) $\int l\,Cos\,x \frac{Sin^{2a-1}x}{Cos^{2a+1}x}dx = \frac{1}{4a}\left\{-l\,2 + (-1)^a l\,2 + \sum_0^{a-1}\frac{(-1)^n}{a-n}\right\}$ V. T. 34, N. 3.

12) $\int l\,Cos\,x \frac{Tg^p x}{Sin\,2\,x}dx = \frac{1}{4p}\left\{l\frac{1}{2} + 2\sum_0^\infty \frac{(-1)^n}{p+2n+2}\right\}$ V. T. 106, N. 12.

13) $\int l\,Cos\,2\,x \frac{Cos^{p-1}2\,x}{Tg\,x}dx = -\frac{1}{2}\sum_0^\infty \frac{1}{(p+n)^2}$ V. T. 108, N. 8.

F. Log. en num. $l\,Tang\,a\,x$; Circ. Dir. rat. en dén. mon.	TABLE 289.	Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x \frac{dx}{Cos\,2\,x} = -\frac{1}{8}\pi^2$ (VIII, 546).

2) $\int l\,Tg\,x \frac{dx}{Sin\,4\,x} = -\infty$ V. T. 112, N. 2.

3) $\int l\,Tg\,x \frac{dx}{Tg\,2\,x} = -\infty$ V. T. 112, N. 1.

4) $\int l\,Tg\,x \frac{Tg\,2\,x}{Cos^2\,x} dx = -\frac{1}{12}\pi^2$ V. T. 315, N. 11.

5) $\int l\,Tg\,x \frac{Tg\,x}{Cos\,2\,x} dx = -\frac{1}{24}\pi^2$ V. T. 108, N. 6.

6) $\int l\,Tg\,x \frac{Sin^{2a}\,x}{Cos^{2a+2}\,x} dx = -\frac{1}{(2a+1)^2}$ V. T. 285, N. 1, 10.

7) $\int l\,Tg\,x \frac{Sin^{2a-1}\,x}{Cos^{2a+1}\,x} dx = -\frac{1}{4a^2}$ V. T. 285, N. 2, 11.

8) $\int l\,Tg\,x\,.\,Sin(p\,Cot\,x)\frac{dx}{Sin^2\,x} = -\infty$ V. T. 35, N. 29.

9) $\int l\,Tg\,x\,.\,Cos(p\,Tg\,x)\frac{dx}{Cos^2\,x} = -\frac{1}{p}Si(p)$ V. T. 35, N. 28.

10) $\int l\,Tg\,x\,.\,Tg\left(\frac{\pi}{4}+x\right)\frac{dx}{Cos^2\,x} = \frac{1}{3}(3-\pi^2)$ V. T. 108, N. 9.

11) $\int l\,Tg\,x \frac{Sin^3\,x}{Cos\,2\,x\,.\,Cos\,x} dx = -\frac{1}{96}\pi^2$ V. T. 108, N. 6.

12) $\int l\,Tg\,x.\left(\frac{Cos\,x - Sin\,x}{Sin\,x}\right)^{p-1}\frac{dx}{Sin^2\,x} = -\frac{\pi}{p}\,Cosec\,p\pi\ [-1<p<0]$ V. T. 35, N. 27.

F. Log. en num. $(l\,Sin\,a\,x)^b$, $(l\,Cos\,a\,x)^b$, $(l\,Tg\,a\,x)^b$; Circ. Dir. rat. en dén. monôme.	TABLE 290.	Lim. 0 et $\frac{\pi}{4}$.

1) $\int (l\,Sin\,2\,x)^{q-1}\frac{Sin^p\,2\,x}{Tg\left(\frac{\pi}{4}-x\right)}dx = -\frac{1}{2}\,Cos\,q\pi.\Gamma(q)\sum_0^\infty \frac{1}{(p+n+1)^q}$ V. T. 110. N. 7.

2) $\int (l\,Sin\,2\,x)^{2a-1}.Tg^2\left(\frac{\pi}{4}+x\right)\frac{dx}{Tg\,2\,x} = \frac{-1}{2a}2^{2a-1}\pi^{2a}B_{2a-1}$ V. T. 112, N. 10.

3) $\int (l\,Cos\,2\,x)^3\frac{dx}{Tg\,x} = -\frac{1}{30}\pi^4$ V. T. 109, N. 11.

4) $\int (l\,Cos\,2\,x)^5\frac{dx}{Tg\,x} = -\frac{4}{63}\pi^6$ V. T. 109, N. 21.

5) $\int (l\,Cos\,2x)^{2a-1} \frac{dx}{Tg\,x} = -\frac{1}{a} 2^{2a-3} \pi^{2a} B_{2a-1}$ V. T. 110, N. 5.

6) $\int (l\,Cos\,2x)^{a-1} \frac{dx}{Tg\,x} = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^a}$ V. T. 110, N. 6.

7) $\int (l\,Cos\,2x)^{2a-1} \frac{Tg\,2x}{Tg^2\,x} dx = -\frac{1}{2a} 2^{2a-1} \pi^{2a} B_{2a-1}$ V. T. 112, N. 10.

8) $\int (l\,Cos\,2x)^{a-1} \frac{Cos^q\,2x}{Tg\,x} dx = \frac{1}{2} (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

9) $\int (l\,Tg\,x)^3 \frac{dx}{Cos\,2x} = -\frac{1}{16} \pi^4$ V. T. 109, N. 13.

10) $\int (l\,Tg\,x)^3 \frac{Tg\,x}{Cos\,2x} dx = -\frac{1}{240} \pi^4$ V. T. 109, N. 11.

11) $\int (l\,Tg\,x)^3 \frac{Sin\,x \,.\, Cos\,x}{Cos\,2x} dx = -\frac{1}{256} \pi^4$ V. T. 109, N. 13.

12) $\int (l\,Tg\,x)^3 \frac{Sin^3\,x}{Cos\,2x \,.\, Cos\,x} dx = -\frac{1}{3840} \pi^4$ V. T. 109, N. 11.

13) $\int (l\,Tg\,x)^5 \frac{dx}{Cos\,2x} = -\frac{1}{8} \pi^6$ V. T. 109, N. 22.

14) $\int (l\,Tg\,x)^5 \frac{Tg\,x}{Cos\,2x} dx = -\frac{1}{504} \pi^6$ V. T. 109, N. 21.

15) $\int (l\,Tg\,x)^5 \frac{Sin\,x \,.\, Cos\,x}{Cos\,2x} dx = -\frac{1}{512} \pi^6$ V. T. 109, N. 22.

16) $\int (l\,Tg\,x)^7 \frac{dx}{Cos\,2x} = -\frac{17}{32} \pi^8$ V. T. 109, N. 30.

17) $\int (l\,Tg\,x)^{2a-1} \frac{dx}{Cos\,2x} = \frac{1-2^{2a}}{4a} \pi^{2a} B_{2a-1}$ V. T. 112, N. 9.

18) $\int (l\,Tg\,x)^{2a} \frac{dx}{Cos\,2x} = \frac{2^{2a+1}-1}{2^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

19) $\int (l\,Tg\,x)^{2a-1} \frac{Tg\,x}{Cos\,2x} dx = -\frac{1}{4a} \pi^{2a} B_{2a-1}$ V. T. 110, N. 5.

20) $\int (l\,Tg\,x)^a \,.\, Tg^p\,x \frac{dx}{Sin\,2x} = \frac{(-1)^a}{2p^{a+1}} 1^{a/1}$ V. T. 107, N. 3.

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21) $\int (l\,Tg\,x)^{2a-1} . Tg\left(\frac{\pi}{4}+x\right) \frac{dx}{Sin\,2\,x} = -\frac{2^{2a-2}}{a}\pi^{2a} B_{2a-1}$ V. T. 112, N. 10.

22) $\int (l\,Tg\,x)^{2a} \frac{dx}{Cos^2\left(\frac{\pi}{4}+x\right)} = (2\pi)^{2a} B_{2a-1}$ V. T. 290, N. 21.

F. Log. en num. $(l\,Tang\,a\,x)^b$; Circ. Dir. rat. en dén. binôme. TABLE 291. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x \frac{dx}{2-Sin\,2\,x} = -\frac{2}{27}\pi^2$ V. T. 113, N. 3.

2) $\int l\,Tg\,x \frac{Cos\,2\,x}{1+p\,Sin\,2\,x} dx = \frac{1}{16p}\{4(Arccos p)^2 - \pi^2\}$ $[p^2 \leqq 1]$ V. T. 313, N. 1.

3) $\int l\,Tg\,x \frac{Cos\,2\,x}{1-p\,Sin\,2\,x} dx = -\frac{1}{4p} Arcsin p . \{\pi + Arcsin p\}$ $[p^2 < 1]$ V. T. 291, N. 2, 9.

4) $\int l\,Tg\,x \frac{Tg\,x}{1-Sin\,x . Cos\,x} dx = -\frac{5}{108}\pi^2$ V. T. 113, N. 4.

5) $\int l\,Tg\,x \frac{Cos\,\lambda - Tg\,x}{1-Cos\,\lambda . Sin\,2\,x} dx = \frac{1}{2}\pi\lambda - \frac{1}{6}\pi^2 - \frac{1}{4}\lambda^2$ V. T. 113, N. 5.

6) $\int l\,Tg\,x \frac{Sin\,2\,x}{4-3\,Sin^2\,2\,x} dx = -\frac{1}{54}\pi^2$ V. T. 112, N. 4.

7) $\int l\,Tg\,x \frac{Cos\,2\,x}{1-Sin^2\,\lambda . Sin^2\,2\,x} dx = -\frac{\pi}{4}\lambda\,Cosec\,\lambda$ V. T. 113, N. 6.

8) $\int l\,Tg\,x \frac{Sin\,4\,x}{1-p^2\,Sin^2\,2\,x} dx = \frac{-1}{2p^2}(Arcsin p)^2$ $[p^2 < 1]$ V. T. 291, N. 2, 9.

9) $\int l\,Tg\,x \frac{Cos\,2\,x}{1-p^2\,Sin^2\,2\,x} dx = -\frac{\pi}{4p} Arcsin p$ $[p^2 \leqq 1]$ V. T. 315, N. 4.

10) $\int l\,Tg\,x \frac{Cos\,2\,x}{1+p^2\,Sin^2\,2\,x} dx = -\frac{\pi}{4p} l\{p+\sqrt{1+p^2}\}$ $[p^2 < 1]$ V. T. 342, N. 1.

11) $\int l\,Tg\,x \frac{Cos\,2\,x}{Cos^2\,2\,x + p^2\,Sin^2\,2\,x} dx = \frac{\pi}{4\sqrt{1-p^2}} Arccos p$ $[p^2 < 1]$ V. T. 315, N. 5.

12) $\int l\,Tg\,x \frac{Cos\,2\,x}{4+(e^p-e^{-p})^2\,Sin^2\,2\,x} dx = -\frac{1}{8}p\frac{\pi}{e^p-e^{-p}}$ (IV, 410).

13) $\int (l\,Tg\,x)^2 \frac{dx}{1+Cos\,\lambda\,.\,Sin\,2\,x} = \frac{1}{6}\lambda(\pi^2-\lambda^2)\,Cosec\,\lambda$ V. T. 113, N. 7.

14) $\int (l\,Tg\,x)^2 \frac{dx}{Sin^4 x + Cos^4 x} = \frac{3}{64}\pi^3\sqrt{2}$ (VIII, 568).

15) $\int (l\,Tg\,x)^2 \frac{dx}{1-Sin^2 x\,.\,Cos^2 x} = \frac{1}{27}\pi^3\sqrt{3}$ V. T. 109, N. 6.

16) $\int (l\,Tg\,x)^2 \frac{Sin\,2\,x}{1-Cos^2\lambda\,.\,Sin^2 2\,x}\,dx = \frac{1}{6}\lambda(\pi-\lambda)(\pi-2\lambda)\,Cosec\,\lambda$ V. T. 113, N. 7.

17) $\int (l\,Tg\,x)^4 \frac{dx}{1+Cos\,\lambda\,.\,Sin\,2\,x} = \frac{\pi^2-\lambda^2}{5}\,\frac{7\pi^2-3\lambda^2}{Sin\,\lambda}\,\lambda$ V. T. 113, N. 8.

F. Log. en num. $(l\,Tang\,a\,x)^b$; Circ. Dir. rat. en dén. composé. TABLE 292. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x \frac{dx}{Cos\,x.(Sin\,x+Cos\,x)} = -\frac{1}{12}\pi^2$ V. T. 294, N. 6.

2) $\int l\,Tg\,x \frac{dx}{Cos\,x.(Cos\,x-Sin\,x)} = -\frac{1}{6}\pi^2$ V. T. 294, N. 7.

3) $\int l\,Tg\,x \frac{Tg^p x}{Cos\,x-Sin\,x}\,\frac{dx}{Sin\,2\,x} = -\frac{1}{2}\sum_0^\infty \frac{1}{(p+n)^2}$ V. T. 108, N. 8.

4) $\int l\,Tg\,x \frac{Sin^q 2\,x}{Cos^{2q} x - Sin^{2q} x}\,\frac{dx}{Sin\,2\,x} = -2^{q-4}\left(\frac{\pi}{q}\right)^2$ V. T. 108, N. 12.

5) $\int l\,Tg\,x \frac{Sin^2 2\,x}{Sin^4 x + Cos^4 x}\,\frac{dx}{Cos\,2\,x} = -\frac{\pi^2}{4(2+\sqrt{2})}$ V. T. 112, N. 21.

6) $\int l\,Tg\,x \frac{Cos\,2\,x}{Tg^p x + Cot^p x}\,\frac{dx}{Sin^2 2\,x} = -\frac{\pi^2}{16p^2}\,Sin\frac{\pi}{2p}.Sec^2\frac{\pi}{2p}$ V. T. 108, N. 13.

7) $\int l\,Tg\,x \frac{dx}{(Tg^p x - Cot^p x)\,Sin^2 2\,x} = \frac{\pi^2}{16p^2}\,Sec^2\frac{\pi}{2p}$ V. T. 108, N. 14.

8) $\int l\,Tg\,x \frac{Tg^q x - Cot^q x}{Tg^p x + Cot^p x}\,\frac{dx}{Sin\,2\,x} = \frac{\pi^2}{8p^2}\,Sin\frac{q\pi}{2p}.Sec^2\frac{q\pi}{2p}$ V. T. 112, N. 3.

9) $\int l\,Tg\,x \frac{Tg^q x + Cot^q x}{Tg^p x - Cot^p x}\,\frac{dx}{Sin\,2\,x} = \frac{\pi^2}{8p^2}\,Sec^2\frac{q\pi}{2p}$ V. T. 112, N. 4.

10) $\int l\,Tg\,x \frac{dx}{(Sin\,x+Cos\,x)^2} = -l2$ V. T. 111, N. 1.

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11) $\int l\,Tg\,x \frac{Sin^{p-1} x}{(Cos\,x - Sin\,x)^{p+1}}\,dx = -\frac{\pi}{p}\,Cosec\,p\,\pi\ [p<1]$ V. T. 37, N. 20.

12) $\int l\,Tg\,x \frac{Sin^{p-1} 2x\,.\,Cos\,2x}{(1+Sin\,2x)^{p+1}}\,dx = -\frac{1}{p\,2^{p+1}}\ \frac{\Gamma(p)}{\Gamma(p+\frac{1}{2})}\sqrt{\pi}\ [p \leqq 1]$ V. T. 37, N. 1.

13) $\int l\,Tg\,x \frac{Tg^p x - Cot^p x}{(Tg^p x + Cot^p x)^2}\ \frac{dx}{Sin\,2x} = \frac{\pi}{8p^2}$ V. T. 37, N. 12.

14) $\int l\,Tg\,x \frac{dx}{(Tg\,x + Cot\,x)^{2p+1}\,Tg\,2x\,.\,Sin\,2x} = -\frac{\{\Gamma(p)\}^2}{32\,p\,\Gamma(2p)}$ V. T. 37, N. 19.

15) $\int (l\,Tg\,x)^2 \frac{Tg^q x + Cot^q x}{Tg^p x + Cot^p x}\ \frac{dx}{Sin\,2x} = \frac{\pi^3}{16p^3}\left\{2\,Sec^3\frac{q\pi}{2p} - Sec\frac{q\pi}{2p}\right\}$ V. T. 109, N. 7.

16) $\int (l\,Tg\,x)^2 \frac{Tg^q x - Cot^q x}{Tg^p x - Cot^p x}\ \frac{dx}{Sin\,2x} = \frac{\pi^3}{8p^3}\,Sin\frac{q\pi}{2p}.Sec^3\frac{q\pi}{2p}$ V. T. 109, N. 8.

17) $\int (l\,Tg\,x)^2 \frac{Tg^q x + Cot^q x}{(Tg^q x - Cot^q x)^2}\ \frac{dx}{Sin\,2x} = \frac{\pi^2}{8q^3}$ V. T. 292, N. 4.

18) $\int (l\,Tg\,x)^3 \frac{dx}{Cos\,x.(Cos\,x + Sin\,x)} = -\frac{7}{120}\pi^4$ V. T. 109, N. 9.

19) $\int (l\,Tg\,x)^3 \frac{dx}{Cos\,x.(Cos\,x - Sin\,x)} = -\frac{1}{15}\pi^4$ V. T. 109, N. 11.

20) $\int (l\,Tg\,x)^5 \frac{dx}{Cos\,x.(Cos\,x + Sin\,x)} = -\frac{31}{252}\pi^6$ V. T. 109, N. 20.

21) $\int (l\,Tg\,x)^5 \frac{dx}{Cos\,x.(Cos\,x - Sin\,x)} = -\frac{8}{63}\pi^6$ V. T. 109, N. 21.

22) $\int (l\,Tg\,x)^7 \frac{dx}{Cos\,x.(Cos\,x + Sin\,x)} = -\frac{127}{240}\pi^8$ V. T. 109, N. 28.

23) $\int (l\,Tg\,x)^7 \frac{dx}{Cos\,x.(Cos\,x - Sin\,x)} = -\frac{8}{15}\pi^8$ V. T. 109, N. 29.

24) $\int (l\,Tg\,x)^{2a} \frac{dx}{Cos\,x.(Cos\,x + Sin\,x)} = \frac{2^{2a}-1}{2^{2a}}\,1^{2a/1}\sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 1.

25) $\int (l\,Tg\,x)^{2a-1} \frac{dx}{Cos\,x.(Cos\,x + Sin\,x)} = \frac{1-2^{2a-1}}{2a}\pi^{2a}\,B_{2a-1}$ V. T. 110, N. 2.

26) $\int (l\,Tg\,x)^{2a-1} \frac{dx}{Cos\,x.(Cos\,x - Sin\,x)} = -\frac{1}{a}\,2^{2a-2}\,\pi^{2a}\,B_{2a-1}$ V. T. 110, N. 5.

27) $\int (l\, Tg x)^{a-1} \frac{Tg^q x}{Cos x + Sin x} \frac{dx}{Cos x} = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{(-1)^{n-1}}{(q+n+1)^a}$ V. T. 110, N. 4.

28) $\int (l\, Tg x)^{a-1} \frac{Tg^q x}{Cos x - Sin x} \frac{dx}{Cos x} = (-1)^{a-1} 1^{a-1/1} \sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

29) $\int (l\, Tg x)^{p-1} \frac{Cos \lambda - Tg x}{1 - Cos \lambda . Sin 2x} \frac{Tg^q x}{Sin 2x} dx = \frac{1}{2} Cos p\pi . \Gamma(p) \sum_0^\infty \frac{Cos n\lambda}{(q+n-1)^p}$ V. T. 113, N. 11.

F. Log. en num. $l\, Tg\left(\frac{\pi}{4} \pm x\right)$;
Circ. Dir. rat. en dén.

TABLE 293.

Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{dx}{Sin 2x} = \pm \frac{1}{8}\pi^2$ V. T. 289, N. 1.

2) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{dx}{Tg 2x} - \pm \frac{1}{16}\pi^2$ V. T. 310, N. 1.

3) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Tg^{p-1} x + Cot^{p-1} x}{Sin 2x} dx = \mp \frac{\pi}{2(p-1)} Cot \frac{1}{2} p\pi \; [p<1]$ V. T. 35, N. 10.

4) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 2x}{1 + p\, Cos 2x} dx = \pm \frac{1}{16p}\{\pi^2 - 4(Arccos p)^2\} \; [p^2 \leqq 1]$ V. T. 313, N. 8.

5) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 2x}{1 - p\, Cos 2x} dx = \pm \frac{1}{4p} Arcsin p . (\pi + Arcsin p) \; [p^2 \leqq 1]$ V. T. 295, N. 4, 6.

6) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 2x}{1 - p^2 Cos^2 2x} dx = \pm \frac{\pi}{4p} Arcsin p \; [p^2 \leqq 1]$ V. T. 315, N. 12.

7) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 4x}{1 - p^2 Cos^2 2x} dx = \pm \frac{1}{2p^2}(Arcsin p)^2 \; [p^2 < 1]$ V. T. 293, N. 4, 6.

8) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 2x}{1 + p^2 Cos^2 2x} dx = \pm \frac{\pi}{4p} l\{p + \sqrt{1+p^2}\} \; [p^2 < 1]$ V. T. 342, N. 2.

9) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 2x}{1 - p^4 Cos^4 2x} dx = \pm \frac{\pi}{8p}\left\{l\{p + \sqrt{1+p^2}\} + Arcsin p\right\} \; [p^2 < 1]$

V. T. 293, N. 6, 8.

10) $\int l\, Tg\left(\frac{\pi}{4} \pm x\right) \frac{Sin 4x . Cos 2x}{1 - p^4 Cos^4 2x} dx = \pm \frac{\pi}{4p^2}\left\{Arcsin p - l\{p + \sqrt{1+p^2}\}\right\} \; [p^2 < 1]$

V. T. 293, N. 6, 8.

1) $\int l\,Cos\,x \frac{dx}{(Cos\,x + p\,Sin\,x)^2} = \frac{1}{1+p^2}\left\{-\frac{\pi}{4} + \frac{1}{p}\,l(1+p) - \frac{1-p}{1+p}\,\frac{1}{2}\,l2\right\}\ [p<1]$ (IV, 415).

2) $\int l\,Cos\,x \frac{Cos\,2\,x}{(1+p\,Sin\,2\,x)^2}\,dx = -\frac{1}{4p}\,l(1+p) - \frac{1}{4(1+p)}\,l2 + \frac{1}{4\sqrt{1-p^2}}\,Arctg\left(\sqrt{\frac{1-p}{1+p}}\right)$
$[p^2<1]$ V. T. 36, N. 2.

3) $\int l\,Cos\,x \frac{Cos\,2\,x}{(1-Cos\,\lambda\,.\,Sin\,2\,x)^2}\,dx = \frac{\pi-\lambda}{4\,Sin\,\lambda} + \frac{1}{2\,Cos\,\lambda}\,l\,Sin\,\frac{1}{2}\,\lambda - \frac{1}{4}\,\frac{1+Cos\,\lambda}{1-Cos\,\lambda}\,Sec\,\lambda\,.\,l2$
V. T. 36, N. 1.

4) $\int l\left\{2\,Sin^2\left(\frac{\pi}{4}+x\right)\right\}\frac{dx}{Tg\,2\,x} = \frac{1}{24}\,\pi^2$ V. T. 114, N. 1.

5) $\int l\left\{2\,Sin^2\left(\frac{\pi}{4}-x\right)\right\}\frac{dx}{Tg\,2\,x} = -\frac{1}{12}\,\pi^2$ V. T. 114, N. 14.

6) $\int l(1+Tg\,x)\frac{dx}{Sin\,2\,x} = \frac{1}{24}\,\pi^2$ V. T. 114, N. 1.

7) $\int l(1-Tg\,x)\frac{dx}{Sin\,2\,x} = -\frac{1}{12}\,\pi^2$ V. T. 114, N. 14.

8) $\int l\left(\frac{1}{2}\,Sin\,2\,x\right)\frac{Sin^{2a}\,x}{Cos^{2a+2}\,x}\,dx = \frac{1}{2a+1}\left\{(-1)^{a+1}\,\frac{\pi}{2} - l2 + \frac{1}{2a+1} + 2\sum_0^{a-1}\frac{(-1)^{n-1}}{2a-2n-1}\right\}$
V. T. 288, N. 1, 10.

9) $\int l(Sin\,x\,.\,Cos\,x)\frac{Sin^{2a-1}\,x}{Cos^{2a+1}\,x}\,dx = \frac{1}{2a}\left\{(-1)^a\,l2 - l2 + \frac{1}{2a} + (-1)^a\sum_1^{a-1}\frac{(-1)^n}{n}\right\}$
V. T. 288, N. 2, 11.

10) $\int l\left(\frac{Cos\,2\,x}{Cos^2\,x}\right)\frac{dx}{Sin\,2\,x} = -\frac{1}{24}\,\pi^2$ V. T. 114, N. 31.

11) $\int l\left(\frac{1-Cos\,2\,\lambda\,.\,Sin\,2\,x}{Cos^2\,x}\right)\frac{dx}{Sin\,2\,x} = \frac{1}{2}\,\pi\,\lambda - \frac{1}{6}\,\pi^2 - \frac{1}{4}\,\lambda^2$ V. T. 114, N. 34.

12) $\int l(1+Tg\,x)\frac{dx}{(q^2\,Cos^2\,x + Sin^2\,x)(Cos^2\,x + q^2\,Sin^2 x)} = \frac{\pi}{4\,q\,(1+q^2)}\left\{l(1+q^2) - 2\,Arctg\,q\,.\,l\,q\right\}$
(VIII, 545).

13) $\int l\,Cos\,x\,.\,(l\,Tg\,x)^2\,\frac{dx}{Sin\,2\,x} = -\frac{7}{11520}\,\pi^4$ V. T. 286, N. 17.

14) $\int l\,Cos\,2\,x\,.\,(l\,Tg\,x)^2\,\frac{dx}{Sin\,2\,x} = -\frac{1}{384}\,\pi^4$ V. T. 286, N. 18.

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15) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^2\,\frac{dx}{Tg\,2x}=\pm\frac{1}{96}\pi^4$ V. T. 310, N. 5.

16) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^4\,\frac{dx}{Tg\,2x}=\pm\frac{1}{80}\pi^6$ V. T. 310, N. 6.

17) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^6\,\frac{dx}{Tg\,2x}=\pm\frac{17}{448}\pi^8$ V. T. 310, N. 7.

18) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{2a}\,\frac{dx}{Tg\,2x}=\pm\frac{2^{2a+2}-1}{8(a+1)(2a+1)}\pi^{2a+2}B_{2a+1}$ V. T. 310, N. 9.

19) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{2a-1}\,\frac{dx}{Tg\,2x}=\pm\frac{1-2^{2a+1}}{a.2^{2a+3}}1^{2a/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 310, N. 8.

20) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Sin\,2x)^{a-1}\,\frac{dx}{Tg\,2x}=\pm\frac{1}{4a}(-1)^a 1^{a/1}\sum_0^\infty\frac{1}{(2n+1)^{a+1}}$ V. T. 310, N. 10.

21) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^2\,\frac{dx}{Sin\,2x}=\pm\frac{1}{48}\pi^4$ V. T. 290, N. 9.

22) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^4\,\frac{dx}{Sin\,2x}=\pm\frac{1}{40}\pi^6$ V. T. 290, N. 13.

23) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^6\,\frac{dx}{Sin\,2x}=\pm\frac{17}{224}\pi^8$ V. T. 290, N. 16.

24) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^{2a}\,\frac{dx}{Sin\,2x}=\pm\frac{2^{2a+2}-1}{4(a+1)(2a+1)}\pi^{2a+2}B_{2a+1}$ V. T. 290, N. 17.

25) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right).(l\,Tg\,x)^{2a-1}\,\frac{dx}{Sin\,2x}=\pm\frac{1-2^{2a+1}}{2^{2a+2}a}1^{2a/1}\sum_1^\infty\frac{1}{n^{2a+1}}$ V. T. 290, N. 18.

F. Log. en num., Log. de Log.; Circ. Dir. rat. dén. TABLE 295. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,l\,Cot\,x\,\frac{Tg^q\,x}{Sin\,2x}\,dx=-\frac{1}{2q}(A+lq)$ V. T. 147, N. 1.

2) $\int l\,l\,Cot\,x\,\frac{dx}{2-Sin\,2x}=\frac{\pi}{\sqrt{3}}\left\{\frac{5}{6}l\,2\pi-l\Gamma\left(\frac{1}{6}\right)\right\}$ V. T. 148, N. 5.

3) $\int l\,l\,Cot\,x\,\frac{dx}{1+Cos\,\lambda.Sin\,2x}=\frac{\pi}{2}\,Cosec\,\lambda.\,l\frac{(2\pi)^{\frac{\lambda}{\pi}}\Gamma\left(\frac{\pi+\lambda}{2\pi}\right)}{\Gamma\left(\frac{\pi-\lambda}{2\pi}\right)}$ V. T. 147, N. 9.

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4) $\int l\, l\, Cot\, x \frac{dx}{(Sin\, x + Cos\, x)^2} = \frac{1}{2} Z'\left(\frac{1}{2}\right) + \frac{1}{2} l\, 2\pi$ V. T. 147, N. 7.

5) $\int l\, l\, Cot\, x \frac{Tg^a\, x + Cot^a\, x}{Tg^b\, x + Cot^b\, x} \frac{dx}{Sin\, 2x} = \frac{\pi}{4b} Sec \frac{a\pi}{2b} . l\, 2\pi + \frac{\pi}{2b} \sum_1^b (-1)^{n-1} Cos\left(\frac{n-\frac{1}{2}}{b} a\pi\right).$

$l \frac{\Gamma\left(\frac{b+n-\frac{1}{2}}{2b}\right)}{\Gamma\left(\frac{n-\frac{1}{2}}{2b}\right)} \left[\begin{matrix} a+b \\ \text{impair} \end{matrix}\right], = \frac{\pi}{4b} Sec \frac{a\pi}{2b} . l\pi + \frac{\pi}{2b} \sum_1^{\frac{1}{2}(b-1)} (-1)^{n-1} Cos\left(\frac{n-\frac{1}{2}}{b} a\pi\right).$

$l \frac{\Gamma\left(\frac{b-n+\frac{1}{2}}{b}\right)}{\Gamma\left(\frac{n-\frac{1}{2}}{b}\right)} \left[\begin{matrix} a+b \\ \text{pair} \end{matrix}\right]$ V. T. 148, N. 6.

6) $\int l(p + l\, Tg\, x) \frac{Tg^q\, x}{Sin\, 2x} dx = \frac{1}{2q} \{lp - e^{-pq} Ei(pq)\}$ V. T. 302, N. 6.

7) $\int l(p - l\, Tg\, x) \frac{Tg^q\, x}{Sin\, 2x} dx = \frac{1}{2q} \{lp + e^{pq} Ei(-pq)\}$ V. T. 302, N. 7.

8) $\int l \{q^2 + (l\, Tg\, x)^2\} dx = \pi l \frac{2\Gamma\left(\frac{2q+3\pi}{4\pi}\right)}{\Gamma\left(\frac{2q+\pi}{4\pi}\right)} + \frac{\pi}{2} l \frac{\pi}{2}$ V. T. 148, N. 10.

9) $\int l\, l\, Cot\, x . (Tg^p\, x + Cot^p\, x)\, dx = \frac{\pi}{2} (l\pi - A) Sec \frac{p\pi}{2} - \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1)\pi - p\pi\}}{2n+1-p} + \right.$

$\left. + \frac{l\{(2n+1)\pi + p\pi\}}{2n+1+p}\right\}$ V. T. 147, N. 5.

10) $\int l\, l\, Cot\, x \frac{Tg^p x - Cot^p x}{Cos\, 2x} dx = \frac{\pi}{2} (A - l\pi) Tg \frac{1}{2} p\pi + \sum_0^\infty \left\{\frac{l\{(2n+1)\pi - p\pi\}}{2n+1-p} - \frac{l\{(2n+1)\pi + p\pi\}}{2n+1+p}\right\}$

V. T. 147, N. 6.

11) $\int l\, l\, Cot\, x . (l\, Cot\, x)^{p-1} \frac{Tg^p\, x}{Sin\, 2x} dx = \frac{\Gamma(p)}{2q^p} \{Z'(p) - lq\}$ V. T. 147, N. 2.

F. Log. en num. $(l\, Tang\, a\, x)^b$; Circ. Dir. irrat. en dén. **TABLE 296.** Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\, Tg\, x \frac{\sqrt{Cos\, 2x}}{Cos^3\, x} dx = -\frac{\pi}{4}\left(\frac{1}{2} + l\, 2\right)$ V. T. 117, N. 1.

2) $\int l\, Tg\, x \frac{Sin\, x . \sqrt{Cos\, 2x}}{Cos^4\, x} dx = \frac{1}{3}\left(l\, 2 - \frac{4}{3}\right)$ V. T. 117, N, 2.

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3) $\int l\,Tg\,x \frac{(Cos\,2\,x)^{a-\frac{1}{2}}}{Cos^{2a+1}x}\,dx = -\frac{1^{a/2}\,\pi}{2^{a+2}\,1^{a/1}}\left\{A + Z'(a+1) + 2\,l2\right\}$ V. T. 117, N. 3.

4) $\int l\,Tg\,x \frac{Tg\,x}{\sqrt{Cos\,2\,x}}\,dx = -\frac{\pi}{8}\,l2$ V. T. 118, N. 3.

5) $\int l\,Tg\,x \frac{Tg^3\,x}{\sqrt{Cos\,2\,x}}\,dx = \frac{1}{4}(l2 - 1)$ V. T. 118, N. 4.

6) $\int l\,Tg\,x \frac{dx}{Cos\,x\,.\sqrt{Cos\,2\,x}} = -\frac{\pi}{2}\,l2$ V. T. 118, N. 3.

7) $\int l\,Tg\,x \frac{Sin\,x}{Cos^2\,x\,.\sqrt{Cos\,2\,x}}\,dx = l2 - 1$ V. T. 118, N. 4.

8) $\int l\,Tg\,x \frac{Sin^{2a-1}\,x}{Cos^{2a}\,x\,.\sqrt{Cos\,2\,x}}\,dx = \frac{2^{a-1/2}}{1^{a/2}}\left\{l2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ V. T. 118, N. 6.

9) $\int l\,Tg\,x \frac{Sin^{2a}\,x}{Cos^{2a+1}\,x\,.\sqrt{Cos\,2\,x}}\,dx = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left\{-l2 + \sum_1^{2a}\frac{(-1)^{n-1}}{n}\right\}$ V. T. 118, N. 5.

10) $\int l\,Tg\,x \frac{dx}{Cos\,x.\sqrt[3]{Cos^3\,x - Sin^3\,x}} = -\frac{1}{27}\pi^2 - \frac{\pi}{3\sqrt{3}}\,l3$ V. T. 118, N. 7.

11) $\int l\,Tg\,x \frac{Sin\,x}{Cos\,x.\sqrt[3]{Cos^3\,x - Sin^3\,x}^2}\,dx = \frac{1}{27}\pi^2 - \frac{\pi}{3\sqrt{3}}\,l3$ V. T. 118, N. 8.

12) $\int l\,Tg\,x \frac{(Cot\,x - 1)^{p-\frac{1}{2}}}{Sin^2\,x}\,dx = -\frac{2\pi}{2p+1}\,Sec\,p\,\pi\,\left[p < \frac{1}{2}\right]$ V. T. 39, N. 16.

13) $\int l\,Tg\,x \frac{1}{(Cot\,x - 1)^{p+\frac{1}{2}}}\,\frac{dx}{Sin^2\,x} = \frac{2}{2p-1}\,\pi\,Sec\,p\,\pi\,\left[p < \frac{1}{2}\right]$ V. T. 38, N. 12.

14) $\int l\,Tg\,x \frac{dx}{\sqrt{Cos\,x\,.(Cos\,x - Sin\,x)^3}} = -4\,l2$ V. T. 39, N. 7.

15) $\int (l\,Tg\,x)^2 \frac{dx}{Cos\,x\,.\sqrt{Cos\,2\,x}} = \frac{\pi}{2}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

16) $\int (l\,Tg\,x)^{2a-1}\,\frac{1}{Cos\,x - Sin\,x}\,\frac{dx}{\sqrt{Sin\,2\,x}} = \frac{1-2^{2a}}{4\,a\sqrt{2}}(2\,\pi)^{2a}\,B_{2a-1}$ V. T. 112, N. 9.

17) $\int (l\,Tg\,x)^{2a}\,\frac{Sin\,x + Cos\,x}{(Sin\,x - Cos\,x)^2}\,\frac{dx}{\sqrt{Sin\,2\,x}} = \frac{2^{2a}-1}{\sqrt{2}}(2\,\pi)^{2a}\,B_{2a-1}$ V. T. 296, N. 16.

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1) $\int (l\,Sin\,2x)^{2a-1} . Tg\left(\frac{\pi}{4}+x\right)\frac{dx}{\sqrt{Sin\,2x}} = \frac{1-2^{2a}}{8a}(2\pi)^{2a}B_{2a-1}$ V. T. 112, N. 9.

2) $\int l\,Cos\,x \frac{1+Cos^2 2x}{Sin^2 2x}\frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{\sqrt{2}}\left\{E'\left(Sin\frac{\pi}{4}\right)-F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 38, N. 1.

3) $\int l\,Cos\,x \frac{Sin^4 x+Cos^4 x}{Sin^2 2x . \sqrt{Cos\,2x}}dx = \frac{1}{2\sqrt{2}}\left\{E'\left(Sin\frac{\pi}{4}\right)-F'\left(Sin\frac{\pi}{4}\right)\right\}$ V. T. 120, N. 5.

4) $\int (l\,Cos\,2x)^{2a-1}\frac{dx}{Tg\,x . \sqrt{Cos\,2x}} = \frac{1-2^{2a}}{8a}(2\pi)^{2a}B_{2a-1}$ V. T. 112, N. 9.

5) $\int (l\,Cot\,x)^{a-\frac{1}{2}}\frac{Tg^p x}{Sin\,2x}dx = \frac{1^{a/2}}{(2p)^{a+1}}\sqrt{p\pi}$ V. T. 107, N. 2.

6) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,x}{Cos^2 x}\frac{dx}{\sqrt{Cos\,2x}} = \pm\pi$ V. T. 38, N. 15.

7) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right)\frac{1-2\,Tg^2 x}{Cos\,x . \sqrt{Cos\,2x}}dx = \mp 2$ V. T. 38, N. 16.

8) $\int l\,Tg\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,x}{Cos^2 x+p^2 Cos\,2x}\frac{dx}{\sqrt{Cos\,2x}} = \pm\frac{\pi}{p}\,l\{p+\sqrt{1+p^2}\}$ V. T. 348, N. 2.

9) $\int dx\sqrt{l\,Cot\,x} = \frac{1}{2}\sqrt{\pi}.\sum_0^\infty \frac{(-1)^n}{\sqrt{(2n+1)^3}}$ V. T. 115, N. 33.

10) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right)\frac{dx}{Cos\,x . \sqrt{Cos\,2x}} = -\pi\,l2$ V. T. 120, N. 10.

11) $\int l\left(\frac{Cos\,x+p\sqrt{Cos\,2x}}{Cos\,x+p\sqrt{Cos\,2x}}\right)\frac{dx}{Cos\,2x} = \pi\,Arcsin\,p\;[p \leqq 1]$ V. T. 115, N. 29.

F. Log. en dén. Fonction monôme; Circ. Dir. ent. TABLE 298. Lim. 0 et $\frac{\pi}{4}$.

1) $\int Sin^2\left(\frac{\pi}{4}-x\right).Tg\left(\frac{\pi}{4}-x\right)\frac{dx}{l\,Sin\,2x} = \frac{1}{4}\,l\frac{2}{\pi}$ V. T. 127, N. 3.

2) $\int Sin^4\left(\frac{\pi}{4}-x\right).Tg\left(\frac{\pi}{4}-x\right)\frac{dx}{l\,Sin\,2x} = \frac{1}{8}\,l\frac{8}{\pi^2}$ V. T. 298, N. 1, 4.

3) $\int Sin^2\left(\frac{\pi}{4}-x\right).Tg\left(\frac{\pi}{4}-x\right).Sin\,2x\frac{dx}{l\,Sin\,2x} = \frac{1}{4}\,l\frac{\pi}{4}$ V. T. 298, N. 1, 4.

4) $\int Sin^2\left(\frac{\pi}{4}-x\right).Cos\,2x\frac{dx}{l\,Sin\,2x} = -\frac{1}{4}\,l2$ V. T. 123, N. 4.

5) $\int (1 - Sin^{q-1} 2x)\, Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{\Gamma\left(\frac{q}{2}\right)}{\Gamma\left(\frac{1}{2}\right)\Gamma\left(\frac{q+1}{2}\right)}$ V. T. 127, N. 4.

6) $\int (1 - Sin^{p} 2x)(1 - Sin^{q} 2x)\, Tg\left(\frac{\pi}{4} + x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

7) $\int Sin^2 x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{4}\, l \frac{2}{3}$ V. T. 127, N. 3.

8) $\int Sin^2 x . Sin\, 2x \frac{dx}{l\, Cos\, 2x} = -\frac{1}{4}\, l 2$ V. T. 123, N. 3.

9) $\int Sin^2 x . Cos\, 2x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{4}\, l \frac{\pi}{4}$ V. T. 298, N. 7, 8.

10) $\int Sin^4 x . Tg\, x \frac{dx}{l\, Cos\, 2x} = \frac{1}{8}\, l \frac{8}{\pi^2}$ V. T. 298, N. 7, 8.

11) $\int Cos^q 2x . Sin^{2a} x . Tg\, 2x \frac{dx}{(l\, Cos\, 2x)^2} = \frac{1}{2^{q+1}} \sum_0^a (-1)^n \binom{a}{n} (q+n+1)\, l(q+n+1)$ V. T. 124, N. 6.

12) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{Cos^2 x . l\, Tg\, x} = l \frac{2}{\pi}$ V. T. 127, N. 3.

13) $\int (1 - Tg\, x)^2 \frac{dx}{l\, Tg\, x} = l \frac{\pi}{4}$ V. T. 128, N. 2.

14) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Tg\, x} = -\frac{1}{2}\, l 2$ (VIII, 545).

15) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{Tg^2 x}{l\, Tg\, x} dx = l \frac{2\sqrt{2}}{\pi}$ V. T. 130, N. 7.

16) $\int Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{Cos^2 x . l\, Tg\, x} = -\, l \frac{\pi}{2}$ V. T. 298, N. 14, 15.

17) $\int Sin(2p\, l\, Tg\, x) \frac{dx}{l\, Tg\, x} = Arctg(e^{p\pi})$ V. T. 405, N. 13.

F. Log. en dén. Fonction monôme; Circ. Dir. fract. à dén. monôme. TABLE 299. Lim. 0 et $\frac{\pi}{4}$.

1) $\int (Sin^{q-1} 2x - Cosec^q 2x)\, Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l\, Tg \frac{1}{2} q\pi$ V. T. 130, N. 6.

2) $\int (Sin^q 2x - Cosec^q 2x)^2\, Tg\left(\frac{\pi}{4} + x\right) \frac{dx}{l\, Sin\, 2x} = \frac{1}{2}\, l \frac{Sin\, 2q\pi}{2q\pi}$ V. T. 130, N. 11.

3) $\int (Sin^q 2x - Cosec^q 2x)^2 Tg\left(\frac{\pi}{4} - x\right) \frac{dx}{l\,Sin\,2x} = \frac{1}{2} l(q\pi\, Cot\, q\pi)$ V. T. 130, N. 7.

4) $\int Sin^q 2x \,.\, Sin^{2a}\left(\frac{\pi}{4} - x\right) \frac{dx}{Tg\,2x.(l\,Sin\,2x)^2} = \frac{1}{2^{a+1}} \sum_0^a (-1)^n \binom{a}{n} (q+n+1)\, l(q+n+1)$

V. T. 124, N. 6.

5) $\int \frac{1 - Cos^{q-1} 2x}{Cot\,x} \frac{dx}{l\,Cos\,2x} = \frac{1}{2} l \frac{\Gamma\left(\frac{q}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\sqrt{\pi}}$ V. T. 127, N. 4.

6) $\int (Cos^{q-1} 2x - Sec^q 2x)\, Tg\,x \frac{dx}{l\,Cos\,2x} = \frac{1}{2} l\,Tg \frac{1}{2} q\pi$ V. T. 130, N. 6.

7) $\int \frac{(1 - Cos^p 2x)(1 - Cos^q 2x)}{Tg\,x} \frac{dx}{l\,Cos\,2x} = \frac{1}{2} l \frac{\Gamma(p+1)\Gamma(q+1)}{\Gamma(p+q+1)}$ V. T. 127, N. 8.

8) $\int (Cos^q 2x - Sec^q 2x)^2\, Tg\,x \frac{dx}{l\,Cos\,2x} = \frac{1}{2} l(q\pi\, Cot\, q\pi)$ V. T. 130, N. 7.

9) $\int \frac{(Cos^q 2x - Sec^q 2x)^2}{Tg\,x} \frac{dx}{l\,Cos\,2x} = \frac{1}{2} l \frac{Sin\,2q\pi}{2q\pi}$ V. T. 130, N. 11.

10) $\int \frac{Tg\left(\frac{\pi}{4} - x\right)}{Cos^2 x} \frac{dx}{l\,Tg\,x} = l \frac{2}{\pi}$ V. T. 127, N. 3.

11) $\int (Tg^p x - Cot^p x) \frac{dx}{l\,Tg\,x} = l\,Tg\left(\frac{1+p}{4}\pi\right)$ V. T. 130, N. 8.

12) $\int \frac{Cos\,x - Sin\,x}{Cos^3 x} \frac{dx}{l\,Tg\,x} = -\,l2$ V. T. 123, N. 4.

13) $\int \frac{Tg^q x - Tg^p x}{Sin\,2x} \frac{dx}{l\,Tg\,x} = \frac{1}{2} l \frac{q}{p}$ V. T. 123, N. 3.

14) $\int \frac{(Tg^q x - Cot^q x)^2}{Cos\,2x} \frac{dx}{l\,Tg\,x} = l\,Cos\,q\pi$ V. T. 130, N. 12.

15) $\int \frac{(Tg^q x - Cot^q x)^2}{Cos\,2x} Tg\,x \frac{dx}{l\,Tg\,x} = l \frac{Sin\,q\pi}{q\pi}$ V. T. 130, N. 13.

16) $\int \frac{(1 - Tg^q x)(1 - Tg^{q+1} x)}{Cos\,2x} \frac{dx}{l\,Tg\,x} = -\,q\,l2$ V. T. 128, N. 12.

17) $\int \left(\frac{Cos\,x - Sin\,x}{Cos^2 x}\right)^2 \frac{dx}{(l\,Tg\,x)^2} = l \frac{27}{16}$ V. T. 124, N. 1.

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18) $\int \left(\frac{Cos\, x - Sin\, x}{Cos^3 x}\right)^2 \frac{Sin\, 2x}{(l\, Tg\, x)^2}\, dx = 4\, l \frac{32}{27}$ V. T. 124, N. 3.

19) $\int (Tg^q x + Cot^q x) \frac{dx}{(l\, Tg\, x)^p} = Cos\, p\pi . \Gamma(1-p) \sum_0^\infty (-1)^n \left\{\frac{1}{(2n+1-q)^{1-p}} + \frac{1}{(2n+1+q)^{1-p}}\right\}$
V. T. 131, N. 1.

20) $\int \frac{Tg^q x - Cot^q x}{Cos\, 2x} \frac{dx}{(l\, Tg\, x)^p} = - Cos\, p\pi . \Gamma(1-p) \sum_0^\infty \left\{\frac{1}{(2n+1-q)^{1-p}} - \frac{1}{(2n+1+q)^{1-p}}\right\}$
V. T. 131, N. 2.

21) $\int \frac{Cos(2p\, l\, Tg\, x)}{Tg\, 2x} \frac{dx}{l\, Tg\, x} = \frac{1}{2}\, l \frac{1-e^{-p\pi}}{1+e^{-p\pi}}$ V. T. 405, N. 15.

F. Log. en dén. Fonction monôme; Circ. Dir. fract. à dén. d' autre forme. TABLE 300. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Sin^2 x . Tg\, x}{1 + Cos^2 2x} \frac{dx}{l\, Cos\, 2x} = -\frac{1}{4}\, l\, 2$ V. T. 130, N. 16.

2) $\int \frac{Sin^2 x . Tg\, x}{1 + Sec^2 2x} \frac{dx}{l\, Cos\, 2x} = \frac{1}{2}\, l \frac{2\sqrt{2}}{\pi}$ V. T. 130, N. 17.

3) $\int \frac{Cos\, 2x}{1 - 2\, Sin^2 x . Cos^2 x} \frac{dx}{l\, Tg\, x} = l\, Cot \frac{3\pi}{8}$ V. T. 128, N. 3.

4) $\int \frac{Cos\, x - Sin\, x}{Cos\, x + Sin\, x} \frac{dx}{l\, Tg\, x} = -\frac{1}{2}\, l\, 2$ (VIII, 545).

5) $\int \frac{(1 - Tg^q x)(1 - Tg^p x) - (1 - Tg\, x)^2}{Cos\, x - Sin\, x} \frac{dx}{Sin\, x . l\, Tg\, x} = l \frac{\Gamma(p)\Gamma(q)}{\Gamma(p+q)}$ V. T. 130, N. 18.

6) $\int \frac{1 - Tg^q x}{Sin\, x + Cos\, x} \frac{Tg^p x}{Cos\, x . l\, Tg\, x}\, dx = l \frac{\Gamma\left(\frac{1}{2}p+1\right)\Gamma\left(\frac{p+q+1}{2}\right)}{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(\frac{p+q}{2}+1\right)}$ V. T. 127, N. 6.

7) $\int \frac{Tg^p x - Tg^q x}{Sin\, x + Cos\, x} \frac{dx}{Sin . x\, l\, Tg\, x} = l \frac{\Gamma\left(\frac{q}{2}\right)\Gamma\left(\frac{p+1}{2}\right)}{\Gamma\left(\frac{q+1}{2}\right)\Gamma\left(\frac{p}{2}\right)}$ V. T. 127, N. 5.

8) $\int \frac{Tg^q x - Cot^q x}{Tg^p x + Cot^p x} \frac{dx}{Sin\, 2x\, l . Tg\, x} = \frac{1}{2}\, l\, Tg\left(\frac{p+q}{4p}\pi\right)$ V. T. 128, N. 5.

9) $\int \frac{(Tg^q x - Cot^q x)^2}{Tg^p x - Cot^p x} \frac{dx}{Sin\, 2x . l\, Tg\, x} = \frac{1}{2}\, l\, Cos \frac{q\pi}{p}$ V. T. 128, N. 8.

10) $\int \frac{Tg^{p-1} x - Cot^p x}{Sin\, x + Cos\, x} \frac{dx}{Cos\, x . l\, Tg\, x} = l\, Tg \frac{1}{2} p \pi$ V. T. 130, N. 6.

11) $\int \frac{(Tg^p x - Cot^p x)^2}{Sin\, x + Cos\, x} \frac{dx}{Cos\, x . l\, Tg\, x} = l (p \pi\, Cot\, p \pi)$ V. T. 130, N. 7.

12) $\int \frac{(Tg^p x - Cot^p x)^2}{Sin\, x - Cos\, x} \frac{dx}{Cos\, x . l\, Tg\, x} = l (2 p \pi\, Cosec\, 2 p \pi)$ V. T. 130, N. 11.

13) $\int \frac{1 - Tg^q x}{Cos\, x - Sin\, x} \frac{1 - Tg^p x}{Sin\, x} \frac{Tg^r x}{l Tg\, x} dx = l \frac{\Gamma(p+r) \Gamma(q+r)}{\Gamma(p+q+r) \Gamma(r)}$ V. T. 127, N. 9.

14) $\int \frac{1 - Tg^{q-1} x}{Sin\, x - Cos\, x} \frac{1 - Tg^{q-\frac{1}{2}} x}{\sqrt{Sin\, 2x}} \frac{dx}{l\, Tg\, x} = \frac{2q-2}{\sqrt{2}} l 2$ V. T. 132, N. 15.

15) $\int \frac{1}{1 + Cos\, \lambda . Sin\, 2x} \frac{dx}{(l\, Cot\, x)^{1-q}} = Cosec\, \lambda . \Gamma(q) \sum_1^\infty (-1)^{n-1} \frac{Sin\, n \lambda}{n^q}$ V. T. 130, N. 1.

16) $\int \frac{Sin\, x + Cos\, x}{1 + Cos\, \lambda . Sin\, 2x} \frac{Sec\, x}{(l\, Cot\, x)^{1-q}} dx = Sec \frac{1}{2} \lambda . \Gamma(q) \sum_1^\infty (-1)^{n-1} \frac{Cos \{(2n-1) \frac{1}{2} \lambda\}}{n^q}$ V. T. 130, N. 5.

F. Log. en dén. Fonction binôme; Circ. Dir. ent. TABLE 301. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{dx}{\pi^2 + (l\, Tg\, x)^2} = \frac{4 - \pi}{4 \pi}$ V. T. 129, N. 6.

2) $\int \frac{dx}{\pi^2 + (l\, Tg^2 x)^2} = \frac{1}{4\pi} l 2$ V. T. 129, N. 7.

3) $\int \frac{dx}{q^2 + (l\, Tg\, x)^2} = \frac{1}{4q} \left\{ Z' \left(\frac{2q + 3\pi}{4\pi} \right) - Z' \left(\frac{2q + \pi}{4 \pi} \right) \right\}$ V. T. 129, N. 9.

4) $\int Tg \left(\frac{\pi}{4} + x \right) \frac{l\, Sin\, 2x}{4\pi^2 + (l\, Sin\, 2x)^2} dx = \frac{1}{8} (1 - 2A)$ V. T. 129, N. 1.

5) $\int Tg \left(\frac{\pi}{4} + x \right) \frac{l\, Sin\, 2x}{q^2 + (l\, Sin\, 2x)^2} dx = \frac{1}{4} \left\{ l \frac{2\pi}{q} + \frac{\pi}{q} + Z' \left(\frac{q}{2\pi} \right) \right\}$ V. T. 129, N. 2.

6) $\int Tg \left(\frac{\pi}{4} + x \right) \frac{l\, Sin\, 2x}{q^2 - (l\, Sin\, 2x)^2} dx = \frac{2\pi^2}{q^2} \sum_0^\infty (-1)^{n-1} \left(\frac{2\pi}{q} \right)^{2n} \frac{1}{n+1} B_{2n+1}$ V. T. 129, N. 3.

7) $\int Tg \left(\frac{\pi}{4} + x \right) \frac{l\, Sin\, 2x}{\{q^2 + (l\, Sin\, 2x)^2\}^2} dx = -\frac{\pi^2}{2q^4} \sum_0^\infty B_{2n+1} \left(\frac{2\pi}{q} \right)^{2n}$ V. T. 129, N. 4.

8) $\int Tg \left(\frac{\pi}{4} + x \right) \frac{l\, Sin\, 2x}{\{q^2 - (l\, Sin\, 2x)^2\}^2} dx = \frac{\pi^2}{2q^4} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q} \right)^{2n} B_{2n+1}$ V. T. 129, N. 5.

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9) $\int Tg\,2x.\,l\,Sin\,x \frac{4\pi^2-(l\,Cos\,2x)^2}{\{4\pi^2+(l\,Cos\,2x)^2\}^2}\,dx=\frac{1}{16}(1-2A)$ V. T. 302, N. 1.

10) $\int Tg\,2x.\,l\,Sin\,x \frac{q^2-(l\,Cos\,2x)^2}{\{q^2+(l\,Cos\,2x)^2\}^2}\,dx=\frac{1}{8}\left\{l\frac{2\pi}{q}+\frac{\pi}{q}+Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 302, N. 2.

11) $\int Tg\,2x.\,l\,Sin\,x \frac{q^2+(l\,Cos\,2x)^2}{\{q^2-(l\,Cos\,2x)^2\}^2}\,dx=\frac{\pi^2}{q^2}\sum_0^\infty(-1)^{n+1}\left(\frac{2\pi}{q}\right)^{2n}\frac{B_{2n+1}}{n+1}$ V. T. 302, N. 3.

12) $\int Tg\,2x.\,l\,Sin\,x \frac{q^2-3(l\,Cos\,2x)^2}{\{q^2+(l\,Cos\,2x)^2\}^3}\,dx=-\frac{\pi^2}{4q^4}\sum_0^\infty\left(\frac{2\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 302, N. 4.

13) $\int Tg\,2x.\,l\,Sin\,x \frac{q^2+3(l\,Cos\,2x)^2}{\{q^2-(l\,Cos\,2x)^2\}^3}\,dx=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n-1}\left(\frac{2\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 302, N. 5.

F. Log. en dén. Fonction binôme; Circ. Dir. en dén. rat. TABLE 302. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{l\,Cos\,2x}{4\pi^2+(l\,Cos\,2x)^2}\frac{dx}{Tg\,x}=\frac{1}{8}(1-2A)$ V. T. 129, N. 1.

2) $\int \frac{l\,Cos\,2x}{q^2+(l\,Cos\,2x)^2}\frac{dx}{Tg\,x}=\frac{1}{8}\left\{l\frac{2\pi}{q}+\frac{\pi}{q}+Z'\left(\frac{q}{2\pi}\right)\right\}$ V. T. 129, N. 2.

3) $\int \frac{l\,Cos\,2x}{q^2-(l\,Cos\,2x)^2}\frac{dx}{Tg\,x}=\frac{2\pi^2}{q^2}\sum_0^\infty(-1)^{n+1}\left(\frac{2\pi}{q}\right)^{2n}\frac{B_{2n+1}}{n+1}$ V. T. 129, N. 3.

4) $\int \frac{l\,Cos\,2x}{\{q^2+(l\,Cos\,2x)^2\}^2}\frac{dx}{Tg\,x}=-\frac{\pi^2}{4q^4}\sum_0^\infty\left(\frac{2\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 129, N. 4.

5) $\int \frac{l\,Cos\,2x}{\{q^2-(l\,Cos\,2x)^2\}^2}\frac{dx}{Tg\,x}=\frac{\pi^2}{2q^4}\sum_0^\infty(-1)^{n+1}\left(\frac{2\pi}{q}\right)^{2n}B_{2n+1}$ V. T. 129, N. 5.

6) $\int \frac{Tg^q\,x}{Sin\,2x}\frac{dx}{p+l\,Tg\,x}=\frac{1}{2}e^{-pq}\,Ei(pq)$ V. T. 125, N. 1.

7) $\int \frac{Tg^q\,x}{Sin\,2x}\frac{dx}{p-l\,Tg\,x}=-\frac{1}{2}e^{pq}\,Ei(-pq)$ V. T. 125, N. 2.

8) $\int \frac{Tg\,x}{Cos\,2x}\frac{l\,Tg\,x}{q^2+(l\,Tg\,x)^2}\,dx=\frac{\pi}{4q}+\frac{1}{2}l\frac{\pi}{q}+\frac{1}{2}Z'\left(\frac{q}{\pi}\right)$ V. T. 129, N. 14.

9) $\int \frac{Tg\,x}{Cos\,2x}\frac{l\,Tg\,x}{q^2-(l\,Tg\,x)^2}\,dx=\frac{\pi^2}{4q^2}\sum_0^\infty(-1)^{n-1}\left(\frac{\pi}{q}\right)^{2n}\frac{B_{2n+1}}{n+1}$ V. T. 129, N. 15.

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10) $\int \frac{l Tg x}{\pi^2 + (l Tg x)^2} \frac{dx}{Cos 2x} = \frac{1}{2}\left\{\frac{1}{2} - l2\right\}$ V. T. 129, N. 10.

11) $\int \frac{l Tg x}{\pi^2 + (l Tg x)^2} \frac{Tg x}{Cos 2x} dx = \frac{1}{4} - \frac{1}{2} \mathrm{A}$ V. T. 129, N. 13.

12) $\int \frac{l Tg x}{\pi^2 + (l Tg^2 x)^2} \frac{dx}{Cos 2x} = \frac{2-\pi}{16}$ V. T. 129, N. 11.

13) $\int \frac{l Tg x}{q^2 + (l Tg x)^2} \frac{Tg x}{Cos 2x} dx = -\frac{1}{2} l \frac{q}{2\pi} - \frac{\pi}{2q} + \frac{1}{2} Z'\left(\frac{q}{2\pi}\right)$ V. T. 129, N. 2.

14) $\int \frac{l Tg x}{\pi^2 + (l Tg^4 x)^2} \frac{dx}{Cos 2x} = -\frac{\pi\sqrt{2}}{64} + \frac{1}{16} + \frac{1}{32\sqrt{2}} l \frac{\sqrt{2}-1}{\sqrt{2}+1}$ V. T. 129, N. 12.

15) $\int \frac{Tg^p x - Cot^p x}{\pi^2 + (l Tg x)^2} \frac{dx}{Cos 2x} = \frac{1}{2\pi}\left\{p\pi\, Cos p\pi - Sin p\pi \,.\, l\{2(1 + Cos p\pi)\}\right\}$ $[p < 1]$

V. T. 131, N. 4.

16) $\int \frac{Tg^p x + Cot^p x}{\pi^2 + (l Tg x)^2} \frac{l Tg x}{Cos 2x} dx = \frac{1}{2}\left\{1 - p\pi\, Sin p\pi - Cos p\pi \,.\, l\{2(1 + Cos p\pi)\}\right\}$ $[p < 1]$

V. T. 131, N. 3.

17) $\int \frac{Tg^p x - Cot^p x}{\pi^2 + (l Tg^2 x)^2} \frac{dx}{Cos 2x} = -\frac{1}{4} Sin \frac{1}{2} p\pi + \frac{\pi}{4} Cos \frac{1}{2} p\pi \,.\, l \frac{1 + Sin \frac{1}{2} p\pi}{1 - Sin \frac{1}{2} p\pi}$ $[p < 1]$

V. T. 131, N. 6.

18) $\int \frac{Tg^p x + Cot^p x}{\pi^2 + (l Tg^2 x)^2} \frac{l Tg x}{Cos 2x} dx = \frac{1}{4} - \frac{\pi}{8} Cos \frac{1}{2} p\pi + \frac{1}{8} Sin \frac{1}{2} p\pi \,.\, l \frac{1 - Sin \frac{1}{2} p\pi}{1 + Sin \frac{1}{2} p\pi}$ $[p < 1]$

V. T. 131, N. 5.

19) $\int \frac{l Tg x}{\{q^2 + (l Tg x)^2\}^2} \frac{Tg x}{Cos 2x} dx = -\frac{\pi^2}{4q^4} \sum_0^\infty \left(\frac{\pi}{q}\right)^{2n} \mathrm{B}_{2n+1}$ V. T. 129, N. 16.

20) $\int \frac{l Tg x}{\{q^2 - (l Tg x)^2\}^2} \frac{Tg x}{Cos 2x} dx = \frac{\pi^2}{4q^4} \sum_0^\infty (-1)^{n-1} \left(\frac{\pi}{q}\right)^{2n} \mathrm{B}_{2n+1}$ V. T. 129, N. 17.

21) $\int l Tg\left(\frac{\pi}{4} \pm x\right) \frac{\pi^2 - (l Tg x)^2}{\{\pi^2 + (l Tg x)^2\}^2} \frac{dx}{Sin 2x} = \pm \frac{1}{2}\left\{l2 - \frac{1}{2}\right\}$ V. T. 302, N. 10.

22) $\int l Tg\left(\frac{\pi}{4} \pm x\right) \frac{\pi^2 - (l Tg^2 x)^2}{\{\pi^2 + (l Tg^2 x)^2\}^2} \frac{dx}{Sin 2x} = \pm \frac{\pi - 2}{16}$ V. T. 302, N. 12.

23) $\int l Tg\left(\frac{\pi}{4} \pm x\right) \frac{\pi^2 - (l Tg^4 x)^2}{\{\pi^2 + (l Tg^4 x)^2\}^2} \frac{dx}{Sin 2x} = \pm \left\{\frac{\pi\sqrt{2}}{64} - \frac{1}{16} + \frac{1}{32\sqrt{2}} l \frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$

V. T. 302, N. 14.

24) $\int \frac{l Tg x}{4\pi^2 + (l Tg x)^2} \frac{dx}{Cos x.(Cos x - Sin x)} = \frac{1}{4}(1 - 2A)$ V. T. 129, N. 1.

25) $\int \frac{l Tg x}{q^2 - (l Tg x)^2} \frac{dx}{Cos x.(Cos x - Sin x)} = \frac{\pi^2}{q^2} \sum_0^\infty (-1)^{n+1} \left(\frac{2\pi}{q}\right)^{2n} \frac{B_{2n+1}}{n+1}$ V. T. 129, N. 3.

F. Log. en dén. Fonction bin.; Circ. Dir. en dén. irrat. TABLE 303. Lim. 0 et $\frac{\pi}{4}$.

1) $\int \frac{Tg\left(\frac{\pi}{4} - x\right)}{\pi^2 + (l Sin 2x)^2} \frac{dx}{\sqrt{Sin 2x}} = \frac{1}{4\pi} l 2$ V. T. 132, N. 1.

2) $\int \frac{Tg\left(\frac{\pi}{4} - x\right)}{\pi^2 + 4(l Sin 2x)^2} \frac{dx}{\sqrt{Sin 2x}} = \frac{1}{8\pi\sqrt{2}} \left\{\pi - l \frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 3.

3) $\int \frac{Tg\left(\frac{\pi}{4} - x\right)}{q^2 + (l Sin 2x)^2} \frac{dx}{\sqrt{Sin 2x}} = \frac{1}{8q} \left\{Z'\left(\frac{q+3\pi}{4\pi}\right) - Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

4) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{4\pi^2 + (l Sin 2x)^2} \frac{Sin^p 2x - Cosec^p 2x}{\sqrt{Sin 2x}} dx = \frac{1}{8\pi} [2p\pi Cos 2p\pi + Sin 2p\pi . l\{2(1 + Cos 2p\pi)\}]$

V. T. 132, N. 11.

5) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{4\pi^2 + (l Sin 2x)^2} \frac{Sin^p 2x + Cosec^p 2x}{\sqrt{Sin 2x}} l Sin 2x . dx = \frac{1}{4} [1 - 2p\pi Sin 2p\pi -$

$- Cos 2p\pi . l\{2(1 + Cos 2p\pi)\}]$ V. T. 132, N. 12.

6) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{\pi^2 + (l Sin 2x)^2} \frac{Sin^p 2x - Cosec^p 2x}{\sqrt{Sin 2x}} dx = \frac{1}{4} \left\{\frac{1}{\pi} Cos p\pi . l \frac{1 + Sin p\pi}{1 - Sin p\pi} - Sin p\pi\right\}$

V. T. 132, N. 9.

7) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{q^2 + (l Sin 2x)^2} \frac{Sin^p 2x - Cosec^p 2x}{\sqrt{Sin 2x}} dx = \frac{\pi}{q} \sum_1^\infty \frac{Sin\{(2p+1)n\pi\}}{q + n\pi}$ $[p < 1]$ V. T. 132, N. 13.

8) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{\pi^2 + (l Sin 2x)^2} \frac{l Sin 2x}{\sqrt{Sin 2x}} dx = \frac{2 - \pi}{8}$ V. T. 132, N. 5.

9) $\int \frac{Tg\left(\frac{\pi}{4} + x\right)}{\pi^2 + 4(l Sin 2x)^2} \frac{l Sin 2x}{\sqrt{Sin 2x}} dx = \frac{-1}{16\sqrt{2}} \left\{\pi - 2\sqrt{2} + l \frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 6.

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10) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{\pi^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x+Cosec^p\,2x}{\sqrt{Sin\,2x}}\,l\,Sin\,2x.dx = \frac{1}{2}-\frac{\pi}{4}\,Cos\,p\pi-\frac{1}{4}\,Sin\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}$ V. T. 132, N. 10.

11) $\int \frac{Tg\left(\frac{\pi}{4}+x\right)}{q^2+(l\,Sin\,2x)^2}\,\frac{Sin^p\,2x+Cosec^p\,2x}{\sqrt{Sin\,2x}}\,l\,Sin\,2x.dx = -\frac{\pi}{2q}-\pi\sum_1^\infty\frac{Cos\{(2p+1)n\pi\}}{q+n\pi}$ $[p^2<1]$ V. T. 132, N. 14.

12) $\int \frac{Tg\,x}{\pi^2+(l\,Cos\,2x)^2}\,\frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{4\pi}\,l2$ V. T. 132, N. 1.

13) $\int \frac{Tg\,x}{\pi^2+4(l\,Cos\,2x)^2}\,\frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8\pi\sqrt{2}}\left\{\pi+l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 132, N. 3.

14) $\int \frac{Tg\,x}{q^2+(l\,Cos\,2x)^2}\,\frac{dx}{\sqrt{Cos\,2x}} = \frac{1}{8q}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right)-Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

15) $\int \frac{Cos^p\,2x-Sec^p\,2x}{\pi^2+(l\,Cos\,2x)^2}\,\frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{1}{4}\left\{\frac{1}{\pi}\,Cos\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}-Sin\,p\pi\right\}$ V. T. 132, N. 9.

16) $\int \frac{Cos^p\,2x-Sec^p\,2x}{4\pi^2+(l\,Cos\,2x)^2}\,\frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{-1}{8\pi}\left\{2p\pi\,Cos\,2p\pi+Sin\,2p\pi.l\{2(1+Cos\,2p\pi)\}\right\}$ V. T. 132, N. 11.

17) $\int \frac{Cos^p\,2x-Sec^p\,2x}{q^2+(l\,Cos\,2x)^2}\,\frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{\pi}{q}\sum_1^\infty\frac{Sin\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 13.

18) $\int \frac{l\,Cos\,2x}{\pi^2+(l\,Cos\,2x)^2}\,\frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{2-\pi}{8}$ V. T. 132, N. 5.

19) $\int \frac{l\,Cos\,2x}{\pi^2+4(l\,Cos\,2x)^2}\,\frac{dx}{Tg\,x.\sqrt{Cos\,2x}} = \frac{-1}{16\sqrt{2}}\left\{\pi-2\sqrt{2}+l\frac{\sqrt{2}+1}{\sqrt{2}-1}\right\}$ V. T. 132, N. 6.

20) $\int \frac{Cos^p\,2x+Sec^p\,2x}{\pi^2+(l\,Cos\,2x)^2}\,\frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}}\,dx = \frac{1}{2}-\frac{\pi}{4}\,Cos\,p\pi-\frac{1}{4}\,Sin\,p\pi.l\frac{1+Sin\,p\pi}{1-Sin\,p\pi}$ V. T. 132, N. 10.

21) $\int \frac{Cos^p\,2x+Sec^p\,2x}{4\pi^2+(l\,Cos\,2x)^2}\,\frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}}\,dx = \frac{1}{4}\left\{1-2p\pi\,Sin\,2p\pi-Cos\,2p\pi.l\{2(1+Cos\,2p\pi)\}\right\}$ V. T. 132, N. 12.

22) $\int \frac{Cos^p\,2x+Sec^p\,2x}{q^2+(l\,Cos\,2x)^2}\,\frac{l\,Cos\,2x}{Tg\,x.\sqrt{Cos\,2x}}\,dx = -\frac{\pi}{2q}-\pi\sum_1^\infty\frac{Cos\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 14.

23) $\int \frac{1}{q^2+(l\,Tg\,x)^2}\,\frac{1}{Sin\,x+Cos\,x}\,\frac{dx}{\sqrt{Sin\,2x}} = \frac{1}{4q\sqrt{2}}\left\{Z'\left(\frac{q+3\pi}{4\pi}\right)-Z'\left(\frac{q+\pi}{4\pi}\right)\right\}$ V. T. 132, N. 4.

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24) $\int \frac{Tg^p x - Cot^p x}{q^2 + (l\,Tg\,x)^2} \frac{1}{Sin\,x - Cos\,x} \frac{dx}{\sqrt{Sin\,2x}} = \frac{\pi\sqrt{2}}{q} \sum_1^\infty \frac{Sin\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$ V. T. 132, N. 13.

25) $\int \frac{Tg^p x + Cot^p x}{q^2 + (l\,Tg\,x)^2} \frac{l\,Tg\,x}{Sin\,x - Cos\,x} \frac{dx}{\sqrt{Sin\,2x}} = \frac{\pi}{q\sqrt{2}} + \pi\sqrt{2}.\sum_1^\infty \frac{Cos\{(2p+1)n\pi\}}{q+n\pi}$ $[p<1]$
V. T. 132, N. 14.

F. Logarithmique; Circul. Directe. } Autre forme. TABLE 304. Lim. 0 et $\frac{\pi}{4}$.

1) $\int l\,Tg\,x\,.\,Sin\,(p\,l\,Tg\,x)\,.\,dx = \frac{\pi^2}{4} \frac{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}{(e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi})^2}$ V. T. 402, N. 5.

2) $\int Sin\,(p\,l\,Tg\,x)\,.\,(Tg^q x - Cot^q x)\,dx = \pi\,Sin\,\frac{1}{2}q\pi \frac{e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi}}{e^{p\pi} + 2\,Cos\,q\pi + e^{-p\pi}}$ $[p^2<1, q^2<1]$
V. T. 402, N. 7.

3) $\int Sin^2(p\,l\,Tg\,x)\,.\,dx = \frac{\pi}{8} \frac{(e^{p\pi}-1)^2}{e^{2p\pi}+1}$ V. T. 402, N. 15.

4) $\int Cos(p\,l\,Tg\,x)\,.\,dx = \frac{\pi}{2} \frac{e^{\frac{1}{2}p\pi}}{e^{p\pi}+1}$ V. T. 402, N. 6.

5) $\int Cos^2(p\,l\,Tg\,x)\,.\,dx = \frac{\pi}{8} \frac{(e^{p\pi}+1)^2}{e^{2p\pi}+1}$ V. T. 402, N. 16.

6) $\int Cos\,(p\,l\,Tg\,x)\,.\,(Tg^q x + Cot^q x)\,dx = \pi\,Cos\,\frac{1}{2}q\pi \frac{e^{\frac{1}{2}p\pi} + e^{-\frac{1}{2}p\pi}}{e^{p\pi} + 2\,Cos\,q\pi + e^{-p\pi}}$ $[p^2<1, q^2<1]$
V. T. 402, N. 8.

7) $\int Sin\,(p\,l\,Tg\,x) \frac{dx}{Cos\,2x} = \frac{\pi}{4} \frac{1-e^{p\pi}}{1+e^{p\pi}}$ V. T. 402, N. 9.

8) $\int Sin\,(p\,l\,Tg\,x) \frac{dx}{Sin\,4x} = \frac{\pi}{8} \frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 403, N. 2.

9) $\int Sin\,(p\,l\,Tg\,x) \frac{Tg^{q-1} x}{Cos\,2x} dx = -\sum_1^\infty \frac{p}{(2n+q)^2+p^2}$ V. T. 402, N. 11.

10) $\int Sin\,(p\,l\,Tg\,x)\,.\,Tg\left(\frac{\pi}{4}+x\right) \frac{dx}{Sin\,2x} = \frac{\pi}{2} \frac{1+e^{2p\pi}}{1-e^{2p\pi}}$ V. T. 403, N. 2.

11) $\int Sin\,(p\,l\,Tg\,x)\,.\,Tg\left(\frac{\pi}{4}-x\right) \frac{dx}{Sin\,2x} = \frac{-\pi}{e^{p\pi}-e^{-p\pi}}$ V. T. 403, N. 1.

12) $\int Sin\,(p\,l\,Tg\,x) \frac{Tg^q x + Cot^q x}{Cos\,2x} dx = -\frac{\pi}{2} \frac{e^{p\pi} - e^{-p\pi}}{e^{p\pi} + 2\,Cos\,q\pi + e^{-p\pi}}$ $[q^2 \leqq 1]$ V. T. 402, N. 12.

13) $\int \frac{Cos(p\,l\,Tg\,x)}{l\,Tg\,x}\,\frac{dx}{Cos\,2x} = \frac{1}{4}\,l(e^{\frac{1}{2}p\pi} - e^{-\frac{1}{2}p\pi})$ V. T. 405, N. 14.

14) $\int Cos(p\,l\,Tg\,x)\,\frac{l\,Tg\,x}{Sin\,4x}\,dx = \frac{1}{4}\pi^2\,\frac{e^{p\pi}}{(1-e^{p\pi})^2}$ V. T. 403, N. 4.

15) $\int l\,Tg\,x.Cos(p\,l\,Tg\,x)\,dx = -\frac{1}{2}\pi^2\,\frac{e^{p\pi}}{e^{p\pi}+1}$ V. T. 402, N. 13.

16) $\int Cos(p\,l\,Tg\,x).Tg\left(\frac{\pi}{4}-x\right)\frac{l\,Tg\,x}{Sin\,2x}\,dx = \pi^2\,e^{-p\pi}\,\frac{1+e^{-2p\pi}}{(1-e^{-2p\pi})^2}$ V. T. 403, N. 3.

17) $\int Cos(p\,l\,Tg\,x)\,\frac{Tg^q\,x - Cot^q\,x}{Cos\,2x}\,dx = \frac{-\pi\,Sin\,q\pi}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ V. T. 402, N. 14.

18) $\int Sin(p\,l\,Tg\,x)\,\frac{1}{1+Cos\,\lambda.Sin\,2x}\,\frac{dx}{Tg\,2x} = -\frac{\pi}{2}\,\frac{e^{p\lambda}+e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 10.

19) $\int Cos(p\,l\,Tg\,x)\,\frac{dx}{1+Cos\,\lambda.Sin\,2x} = \frac{\pi}{2}\,Cosec\,\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 6.

20) $\int Cos(p\,l\,Tg\,x)\,\frac{1}{1+Cos\,\lambda.Sin\,2x}\,\frac{dx}{Sin\,2x} = -\frac{\pi}{2}\,Cot\,\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 404, N. 11.

21) $\int Sin(p\,l\,Tg\,x)\,\frac{dx}{l\,Tg\,x} = Arctg(e^{\frac{1}{2}p\pi})$ V. T. 405, N. 13.

22) $\int Cos(p\,l\,Tg\,x)\,\frac{dx}{Tg\,2x.l\,Tg\,x} = \frac{1}{2}\,l\,\frac{1-e^{-\frac{1}{2}p\pi}}{1+e^{-\frac{1}{2}p\pi}}$ V. T. 400, N. 15.

23) $\int Cos(p\,l\,Tg\,x)\,\frac{dx}{Sin\,4x.l\,Tg\,x} = -\frac{1}{4}\,l(e^{\frac{1}{2}p\pi}+e^{-\frac{1}{2}p\pi})$ V. T. 405, N. 16.

24) $\int \frac{dx}{\sqrt{l\,Cot\,x}} = \sqrt{\pi}.\sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 133, N. 2.

25) $\int \frac{l\,l\,Cot\,x}{\sqrt{l\,Cot\,x}}\,dx = \sqrt{\pi}.\sum_0^\infty (-1)^{n+1}\,\frac{l(2n+1)+2\,l\,2+\mathrm{A}}{\sqrt{2n+1}}$ V. T. 147, N. 4.

26) $\int \frac{Sin^{p-1}\,x}{Cos^{p+1}\,x.\sqrt{l\,Cot\,x}}\,dx = \sqrt{\frac{\pi}{p+1}}$ V. T. 144, N. 10.

27) $\int \frac{Tg^p\,x}{Sin\,2x.\sqrt{l\,Cot\,x}}\,dx = \frac{1}{2}\sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

28) $\int \frac{l\,l\,Cot\,x.Tg^{p'}\,x}{Sin\,2x.\sqrt{l\,Cot\,x}}\,dx = -\frac{1}{2}\sqrt{\frac{\pi}{q}}.(\mathrm{A}+2\,l\,2+l\,p)$ V. T. 147, N. 3.

F. Logarithmique; Circul. Directe. } Autre forme. TABLE 304, suite. Lim. 0 et $\frac{\pi}{4}$.

29) $\int \frac{1}{2+Sin\,2x}\,\frac{dx}{\sqrt{l\,Cot\,x}} = \frac{1}{2}\,Cosec\,\frac{\pi}{3}\,.\,\sqrt{\pi}.\sum_1^\infty (-1)^{n-1}\,Sin\,\frac{n\pi}{3}\,.\,\frac{1}{\sqrt{n}}$ V. T. 133, N. 3.

30) $\int \frac{l\,l\,Cot\,x}{2+Sin\,2x}\,\frac{dx}{\sqrt{l\,Cot\,x}} = \frac{1}{2}\,Cosec\,\frac{\pi}{3}\,.\,\sqrt{\pi}.\,\sum_1^\infty (-1)^n\,Sin\,\frac{n\pi}{3}\,.\,\frac{l\,n+2\,l\,2+A}{\sqrt{n}}$ V. T. 147, N. 8.

F. Log. en num. $(l\,Sin\,x)^a$; Circ. Dir. rat. ent. TABLE 305. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x.dx = -\frac{1}{2}\pi\,l\,2$ (VIII, 256). 2) $\int l((Sin\,x)).dx = -\frac{1}{2}\pi\,l\,2 + k\pi^2 i$ (VIII, 258).

3) $\int l((-Sin\,x)).dx = -\frac{1}{2}\pi\,l\,2 + (2k+1)\frac{1}{2}\pi^2 i$ (VIII, 258).

4) $\int l\,Sin\,x\,.\,Sin\,x\,dx = l\,2 - 1$ (VIII, 685). 5) $\int l\,Sin\,x\,.\,Cos\,x\,dx = -1$ (VIII, 423).

6) $\int l\,Sin\,x\,.\,Cos\,q\,x\,dx = -\frac{\pi}{8q}\,[q>1]$ (IV, 462*).

7) $\int l\,Sin\,x\,.\,Sin^2 x\,dx = \frac{1}{8}\pi(1-2\,l\,2)$ (VIII, 544).

8) $\int l\,Sin\,x.Cos^2 x\,dx = -\frac{1}{8}\pi(1+2\,l\,2)$ (VIII, 685).

9) $\int l\,Sin\,x\,.\,Sin\,x\,.\,Cos^2 x\,dx = \frac{1}{9}(3\,l\,2-4)$ (VIII, 685).

10) $\int l\,Sin\,x\,.\,Cos\,2\,x\,dx = -\frac{1}{4}\pi$ V. T. 305, N. 7, 8.

11) $\int l\,Sin\,x\,.\,Tg\,x\,dx = -\frac{1}{24}\pi^2$ (VIII, 544).

12) $\int l\,Sin\,x\,.Sin^{2a} x\,dx = -\frac{3^{a-1/2}}{1^{a/2}}\,\frac{\pi}{2}\left\{l\,2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

13) $\int l\,Sin\,x\,.Sin^{2a-1} x\,dx = \frac{2^{a-1/2}}{1^{a/2}}\left\{l\,2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

14) $\int l\,Sin\,x.Cos^{2a} x\,dx = -\frac{1^{a/2}}{2^{a+2}\,1^{a/1}}\,\pi\left\{A + Z'(a+1) + 2\,l\,2\right\}$ V. T. 117, N. 3.

15) $\int l\,Sin\,x\,.\,Sin^q x\,.\,Cos\,x\,dx = -\frac{1}{(q+1)^2}$ V. T. 107, N. 1.

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16) $\int l\,Sin\,2x \,.\, Sin\,x\,dx = 2\,(l2 - 1)$ (VIII, 423).

17) $\int l\,Sin\,2x \,.\, Cos\,x\,dx = 2\,(l2 - 1)$ (VIII, 423).

18) $\int l\,Sin\,x \,.\, Cos\,(p\,Sin\,x) \,.\, Cos\,x\,dx = -\frac{1}{p}\,Si(p)$ V. T. 52, N. 10.

19) $\int (l\,Sin\,x)^2\,dx = \frac{\pi}{2}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

20) $\int (l\,Sin\,x)^3 \,.\, Tg\,x\,dx = -\frac{1}{240}\pi^4$ V. T. 109, N. 11.

21) $\int (l\,Sin\,x)^5 \,.\, Tg\,x\,dx = -\frac{1}{504}\pi^6$ V. T. 109, N. 21.

22) $\int (l\,Sin\,x)^p \,.\, Cos\,x\,dx = Cos\,p\pi \,.\, \Gamma\,(p+1)$ V. T. 30, N. 2.

23) $\int (l\,Sin\,x)^{2a-1} \,.\, Tg\,x\,dx = -\frac{1}{4a}\pi^{2a}\,\mathrm{B}_{2a-1}$ V. T. 110, N. 5.

24) $\int (l\,Sin\,x)^{a-1} \,.\, Tg\,x\,dx = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\sum_1^\infty \frac{1}{n^a}$ V. T. 110, N. 6.

25) $\int (l\,Sin\,x)^q \,.\, Sin^{p-1}\,x \,.\, Cos\,x\,dx = \frac{Cos\,q\pi}{p^{q+1}}\,\Gamma\,(q+1)$ V. T. 107, N. 3.

26) $\int (l\,Sin\,x)^{a-1} \,.\, Sin^{2q}\,x \,.\, Tg\,x\,dx = (-1)^{a-1}\,2^{-a}\,1^{a-1/1}\sum_0^\infty \frac{1}{(q+n)^a}$ V. T. 110, N. 7.

F. Log. en num. $(l\,Cos\,x)^a$; Circ. Dir. rat. ent. — TABLE 306. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Cos\,x \,.\, dx = -\frac{1}{2}\pi\,l2$ (VIII, 256).

2) $\int l\,Cos\,x \,.\, Sin\,x\,dx = -1$ (VIII, 423).

3) $\int l\,Cos\,x \,.\, Cos\,x\,dx = l2 - 1$ (VIII, 685).

4) $\int l\,Cos\,x \,.\, Sin^2\,x\,dx = -\frac{1}{8}\pi\,(1 + 2\,l2)$ (VIII, 685).

5) $\int l\,Cos\,x \,.\, Cos^2\,x\,dx = \frac{1}{8}\pi\,(1 - 2\,l2)$ (VIII, 685).

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6) $\int l\,Cos\,x \,.\, Cos\,2x\,dx = \frac{1}{4}\pi$ V. T. 306, N. 4, 5.

7) $\int l\,Cos\,x \,.\, Sin^2 x \,.\, Cos\,x\,dx = \frac{1}{9}(3\,l2 - 4)$ (VIII, 685).

8) $\int l\,Cos\,x \,.\, Sin^{2a} x\,dx = -\frac{1^{a/2}}{2^{a+1}\,1^{a/1}}\,\frac{\pi}{2}\left\{A + 2\,l2 + Z'(a+1)\right\}$ V. T. 117, N. 3.

9) $\int l\,Cos\,x \,.\, Cos^{2a-1} x\,dx = \frac{2^{a-1/2}}{1^{a/2}}\left\{l2 + \sum_1^{2a-1}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

10) $\int l\,Cos\,x \,.\, Cos^{2a} x\,dx = -\frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left\{l2 + \sum_1^{2a}\frac{(-1)^n}{n}\right\}$ (VIII, 685).

11) $\int l\,Cos\,x \,.\, Cos^q x \,.\, Sin\,x\,dx = \frac{-1}{(q+1)^2}$ V. T. 107, N. 1.

12) $\int l\,Cos\,x \,.\, Cos^{p-1} x \,.\, Sin\,x \,.\, Sin\,px\,dx = \frac{\pi}{2^{p+2}}\left\{A + Z'(p) - \frac{1}{p} - 2\,l2\right\}$ (IV, 432).

13) $\int l\,Cos\,x \,.\, Cos(p\,Cos\,x) \,.\, Sin\,x\,dx = -\frac{1}{p}\,Si(p)$ V. T. 43, N. 17.

14) $\int (l\,Cos\,x)^2\,dx = \frac{1}{2}\pi\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

15) $\int (l\,Cos\,x)^p \,.\, Sin\,x\,dx = Cos\,p\pi \,.\, \Gamma(1+p)$ V. T. 30, N. 2.

16) $\int (l\,Cos\,x)^q \,.\, Cos^p x \,.\, Tg\,x\,dx = \frac{Cos\,q\pi}{p^{q+1}}\,\Gamma(q+1)$ V. T. 107, N. 3.

F. Log. en num. $(l\,Tang\,x)^a$; Circ. Dir. rat. ent. TABLE 307. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Tg\,x \,.\, dx = 0$ (VIII, 257).

2) $\int l(p\,Tg\,x) \,.\, dx = \frac{\pi}{2}\,lp$ V. T. 135, N. 4.

3) $\int l\,Tg\,x \,.\, Sin\,x\,dx = l2$ (VIII, 423).

4) $\int l\,Tg\,x \,.\, Cos\,x\,dx = -l2$ (VIII, 423).

5) $\int l\,Tg\,x \,.\, Sin^2 x\,dx = \frac{1}{4}\pi$ V. T. 307, N. 1, 7.

6) $\int l\,Tg\,x \,.\, Cos^2 x\,dx = -\frac{1}{4}\pi$ V. T. 307, N. 1, 7.

7) $\int l\,Tg\,x\,.\,Cos\,2\,x\,dx = -\frac{1}{2}\pi$ V. T. 305, N. 10 et T. 306, N. 6.

8) $\int l(p\,Tg\,x)\,.\,Sin^{q-1}2\,x\,d\,x = 2^{q-1}\,l p\,\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ (VIII, 273).

9) $\int l\,Tg\,x\,.\,Cos^{2(q-1)}x\,dx = -\frac{\Gamma(q-\frac{1}{2})}{\Gamma(q)}\,\frac{1}{4}\sqrt{\pi}.\left\{\mathrm{A}+2\,l\,2+\mathrm{Z}'\left(\frac{2\,q-1}{2}\right)\right\}$ (IV, 434).

10) $\int l\,Tg\,x\,.\,Cos^{q-1}x\,.\,Cos\,\{(q+1)x\}\,dx = -\frac{\pi}{2\,q}$ (IV, 434).

11) $\int l\,Tg\,x\,.\,Cos^{q-1}x\,.\,Cot\,x\,.\,Sin\,\{(q+1)x\}\,dx = -\frac{1}{2}\pi\,\{\mathrm{A}+\mathrm{Z}'(q+1)\}$ (IV, 434).

12) $\int l\,Tg\,x\,.\,Sin^{2a-1}\,2\,x\,.\,Cos\,2\,x\,dx = -\frac{1}{2\,a}\,\frac{2^{a-1/2}}{3^{a-1/2}}$ V. T. 40, N. 2.

13) $\int (l\,Tg\,x)^2\,dx = \frac{1}{8}\pi^3$ V. T. 109, N. 3.

14) $\int (l\,Tg\,x)^{2a-1}\,dx = 0$ (VIII, 286).

15) $\int (l\,Tg\,x)^{2a}\,dx = 2\,.\,1^{2a/1}\,\sum_0^\infty \frac{(-1)^n}{(2\,n+1)^{2a+1}}$ (VIII, 286).

1) $\int l\,Sin^2\,(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{1-e^{-2p}}{2}$ V. T. 417, N. 1.

2) $\int l\,Cos^2\,(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{1+e^{-2p}}{2}$ V. T. 417, N. 2.

3) $\int l\,Tg^2\,(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{e^p-e^{-p}}{e^p+e^{-p}}$ V. T. 417, N. 3.

4) $\int l\,Cot^2\,(p\,Tg\,x)\,.\,dx = \pi\,l\,\frac{e^p+e^{-p}}{e^p-e^{-p}}$ V. T. 417, N. 4.

5) $\int l(1+Cos\,x)\,.\,dx = -\frac{1}{2}\pi\,l\,2 + 2\sum_0^\infty \frac{(-1)^n}{(2\,n+1)^2}$ V. T. 285, N. 1.

6) $\int l(1-Cos\,x)\,.\,dx = -\frac{1}{2}\pi\,l\,2 - 2\sum_0^\infty \frac{(-1)^n}{(2\,n+1)^2}$ V. T. 204, N. 2.

7) $\int l(1+p\,Sin\,x)^2\,dx = \pi\,l\,\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1], = -\pi\,l\,2p\,[p^2>1]$ (VIII, 356*).

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8) $\int l(1+p\,Cos\,x)^2\,dx = \pi\, l\frac{1+\sqrt{1-p^2}}{2}$ $[p^2<1]$, $= -\pi\, l 2p$ $[p^2>1]$ (VIII, 356*).

9) $\int l(1+Tg\,x)\,dx = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 136, N. 1.

10) $\int l(1-Tg\,x)^2\,dx = \frac{\pi}{2}\, l2 + 2\, l \sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 136, N. 2.

11) $\int l(Tg\,x + Cot\,x)\,dx = \pi\, l2$ V. T. 137, N. 8.

12) $\int l(Tg\,x - Cot\,x)^2\,dx = \pi\, l2$ V. T. 138, N. 4.

13) $\int l(1+p\,Sin^2 x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (VIII, 357).

14) $\int l(1+p\,Sin\,x . Cos\,x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (IV, 435).

15) $\int l(1+p\,Cos^2 x)\,dx = \pi\, l\frac{1+\sqrt{1+p}}{2}$ (VIII, 357).

16) $\int l(1+p^2\,Tg^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

17) $\int l(p^2+Tg^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

18) $\int l(1+p^2\,Cot^2 x)\,dx = \pi\, l(1+p)$ (VIII, 605).

19) $\int l\left\{1+p^2\,Tg^2\,(q\,Tg\,x)\right\}\,dx = \pi\, l\left\{1+p\frac{e^q-e^{-q}}{e^q+e^{-q}}\right\}$ V. T. 421, N. 1.

20) $\int l\left\{1+p^2\,Cot^2\,(q\,Tg\,x)\right\}\,dx = \pi\, l\left\{1+p\frac{e^q+e^{-q}}{e^q-e^{-q}}\right\}$ V. T. 421, N. 2.

21) $\int l(Tg^2 x - Cot^2 x)^2\,dx = 3\pi\, l2$ V. T. 138, N. 17.

22) $\int l(\sqrt{Tg\,x}+\sqrt{Cot\,x})\,dx = \frac{\pi}{4}\, l2 + \sum_0^\infty \frac{(-1)^n}{(2n+1)^2}$ V. T. 137, N. 6.

23) $\int l(\sqrt{Tg\,x}-\sqrt{Cot\,x})^2\,dx = \frac{\pi}{2}\, l2 + 2\sum_0^\infty \frac{(-1)^{n-1}}{(2n+1)^2}$ V. T. 137, N. 7.

24) $\int l(1+2p\,Sin\,x+p^2)\,dx = \sum_0^\infty \frac{1}{2n+1}\,\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}$ $[p\leqq 1]$ V. T. 208; N. 29.

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25) $\int l\left\{1+2p\,Cos\left(q\,Tg\,\frac{x}{r}\right)+p^2\right\}dx=\pi\,l(1+pe^{-qr})\,[p^2\leqq 1],=\pi\,l(p+e^{-qr})\,[p^2\geqq 1]$
V. T. 421, N. 11.

26) $\int l\left(\frac{Cos\,2\,x}{Cos^2 x}\right)^2 dx=\pi\,l2$ V. T. 136, N. 5.

27) $\int l\left(\frac{Sin\,x+Cos\,x}{Sin\,x-Cos\,x}\right)^2 dx=4\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 138, N. 21.

28) $\int l\,l\,Tg\,x.dx=\frac{\pi}{2}\,l\left\{\frac{\Gamma(\frac{3}{4})}{\Gamma(\frac{1}{4})}\sqrt{2\pi}\right\}$ V. T. 148, N. 1.

29) $\int l(Tg^p\,x+Cot^p\,x).\,l\,Tg\,x.\,dx=0$ (VIII, 273).

1) $\int l\,Cos\,x\,.\,Cos\,(p\,l\,Sin\,x).Tg\,x\,dx=\frac{1}{2p^2}+\frac{\pi}{4p}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 309, N. 21.

2) $\int (l\,Sin\,x)^2\,.\,Sin\,(p\,l\,Cos\,x)\,.\,Tg\,x\,dx=\infty$ V. T. 310, N. 16.

3) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^2.Tg\,x\,dx=-\frac{1}{720}\pi^4$ V. T. 311, N. 7.

4) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^4.Tg\,x\,dx=-\frac{1}{2520}\pi^6$ V. T. 311, N. 9.

5) $\int l\,Sin\,x\,.\,(l\,Cos\,x)^{2a}.Tg\,x\,dx=-\frac{1}{4}\,\frac{\pi^{2a+2}}{(a+1)(2a+1)}B_{2a+1}$ V. T. 311, N. 13.

6) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).\,Sin\,2\,x\,dx=\pm\pi$ V. T. 45, N. 25.

7) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).\,Tg\,x\,dx=\pm\frac{1}{2}\pi^2$ V. T. 141, N. 13.

8) $\int l(p\,Tg\,x)\,.\,Sin\,(q\,Tg\,x)\,.\,Tg\,x\,dx=\frac{\pi}{4}\,e^{-q}\,\{2\,lp-Ei(q)\}-\frac{\pi}{4}\,e^q\,Ei(-q)$ V. T. 422, N. 1.

9) $\int l(p\,Tg\,x)\,.\,Cos\,(q\,Tg\,x)\,dx=\frac{\pi}{4q}\,e^{-q}\,\{2\,lp-Ei(q)\}+\frac{\pi}{4q}\,e^q\,Ei(-q)$ V. T. 422, N. 2.

10) $\int l(p\,Tg\,x)\,.\,Cos(q\,Cot\,x)\,dx=\frac{\pi}{4q}\,\{e^{-q}\,Ei(q)-e^q\,Ei(-q)\}+\frac{\pi}{4q}\,e^{-q}\,lp$ V. T. 422, N. 4.

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11) $\int l(p\,Cot\,x)\,.\,Sin\,(q\,Tg\,x)\,.\,Tg\,x\,dx = \frac{\pi}{4}\,\{e^{-q}\,Ei(q) + e^{q}\,Ei(-q)\} + \frac{\pi}{2}\,e^{-q}\,lp$ V. T. 422, N. 3.

12) $\int l(p\,Cot\,x)\,.\,Cos\,(q\,Tg\,x)\,dx = \frac{\pi}{4q}\,\{e^{-q}\,Ei(q) - e^{q}\,Ei(-q)\} + \frac{\pi}{2q}\,e^{-q}\,lp$ V. T. 422, N. 4.

13) $\int l(p\,Cot\,x)\,.\,Cos\,(q\,Cot\,x)\,dx = \frac{\pi}{4q}\,e^{-q}\,\{2\,lp - Ei(q)\} + \frac{\pi}{4q}\,e^{q}\,Ei(-q)$ V. T. 422, N. 2.

14) $\int l(1 + p\,Sin^2\,x)\,.\,Sin^2\,x\,dx = \frac{\pi}{2}\left\{l\,\frac{1+\sqrt{1+p}}{2} - \frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

15) $\int l(1 + p\,Sin^2\,x)\,.\,Cos^2\,x\,dx = \frac{\pi}{2}\left\{l\,\frac{1+\sqrt{1+p}}{2} + \frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

16) $\int l(1 + p\,Sin^2\,x)\,.\,Cos\,2\,x\,dx = \frac{\pi}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}$ V. T. 308, N. 13 et T. 309, N. 14.

17) $\int l(1 + p\,Cos^2\,x)\,.\,Sin^2\,x\,dx = \frac{\pi}{2}\left\{l\,\frac{1+\sqrt{1+p}}{2} + \frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

18) $\int l(1 + p\,Cos^2\,x)\,.\,Cos^2\,x\,dx = \frac{\pi}{2}\left\{l\,\frac{1+\sqrt{1+p}}{2} - \frac{1}{2}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}\right\}$ (VIII, 358).

19) $\int l(1 + p\,Cos^2\,x)\,.\,Cos\,2\,x\,dx = \pi\,\frac{1-\sqrt{1+p}}{p} + \frac{1}{2}\,\pi$ V. T. 308, N. 15 et T. 309, N. 17.

20) $\int l(1 + Cos^p\,x)\,.\,Tg\,x\,dx = \frac{1}{12\,p}\,\pi^2$ V. T. 114, N. 30.

21) $\int l(1 - Cos^p x)\,.\,Tg\,x\,dx = -\frac{1}{6p}\,\pi^2$ V. T. 114, N. 31.

22) $\int l(1 + 2\,p\,Cos\,2\,x + p^2)\,.\,Sin^2\,x\,dx = -\frac{1}{4}\,p\,\pi\,[p^2 < 1], = \frac{\pi}{4}\,lp^2 - \frac{1}{4}\,p\,\pi\,[p^2 > 1]$ (VIII, 276).

23) $\int l(1 - 2\,p\,Cos\,2\,x + p^2)\,.\,Cos^2\,x\,dx = \frac{1}{4}\,p\,\pi\,[p^2 < 1], = \frac{1}{4}\,p\,\pi + \frac{1}{4}\,\pi\,lp^2\,[p^2 > 1]$ (VIII, 276).

24) $\int l(r\,Tg\,x)\,.\,Sin^{q-1}\,2\,x\,dx = 2^{q-1}\,lr\,\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ (VIII, 273).

25) $\int Tg\,x\,.\,Sin\,(p\,l\,Sin\,x)\,dx = \frac{1}{2p} + \frac{\pi}{4}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 402, N. 10.

26) $\int Sin^q\,x\,.\,Tg\,x\,.\,Sin\,(p\,l\,Sin\,x)\,dx = -\sum_{1}^{\infty}\frac{p}{(2\,n+q)^2 + p^2}$ V. T. 402, N. 11.

1) $\int l\,Sin\,x\,\frac{dx}{Cos\,x} = -\frac{1}{8}\pi^2$ V. T. 108, N. 11.

2) $\int l\,Sin\,x\,\frac{dx}{Cos\,2x} = -\frac{1}{8}\pi^2$ (VIII, 544).

3) $\int l\,Sin\,x\,\frac{dx}{Tg^{p-1}x\,.\,Sin\,2x} = \frac{1}{4}\,\frac{\pi}{p-1}\,Sec\,\frac{1}{2}p\pi\;[p<1]$ V. T. 45, N. 19.

4) $\int l\,Sin\,x\,\frac{Sin^{p-1}x}{Cos^{p+1}x}\,dx = -\frac{\pi}{2p}\,Cosec\,\frac{1}{2}p\pi\;\left[0<p<\frac{1}{2}\right]$ V. T. 42, N. 1.

5) $\int (l\,Sin\,x)^3\,\frac{dx}{Cos\,x} = -\frac{1}{16}\pi^4$ V. T. 109, N. 13.

6) $\int (l\,Sin\,x)^5\,\frac{dx}{Cos\,x} = -\frac{1}{8}\pi^6$ V. T. 109, N. 22.

7) $\int (l\,Sin\,x)^7\,\frac{dx}{Cos\,x} = -\frac{17}{32}\pi^8$ V. T. 109, N. 30.

8) $\int (l\,Sin\,x)^{2a}\,\frac{dx}{Cos\,x} = \frac{2^{2a+1}-1}{2^{2a+2}}\,1^{2a/1}\sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

9) $\int (l\,Sin\,x)^{2a-1}\,\frac{dx}{Cos\,x} = \frac{2^{2a}-1}{4a}\,\pi^{2a}\,\mathrm{B}_{2a-1}$ V. T. 112, N. 9.

10) $\int (l\,Sin\,x)^{a-1}\,\frac{dx}{Cos\,x} = (-1)^{a-1}\,1^{a-1/1}\sum_0^\infty \frac{1}{(2n+1)^a}$ (VIII, 577).

11) $\int (l\,Sin\,x)^{a-1}\,\frac{Sin^q\,x}{Cos\,x}\,dx = (-1)^{a-1}\,1^{a-1/1}\sum_0^\infty \frac{1}{(2n+q+1)^a}$ (VIII, 577).

12) $\int l\,Sin\,x.Cos\,(p\,Tg\,x)\,\frac{dx}{Cos^2\,x} = \pi\,\frac{e^{-p}-1}{2p}$ V. T. 51, N. 2.

13) $\int l\,Sin\,x.Sin\,(p\,Cot\,x)\,\frac{dx}{Sin^2\,x} = \infty$ V. T. 43, N. 6.

14) $\int l\,Sin\,x.Sin\,(p\,Cot\,x)\,\frac{dx}{Sin\,2x} = -\frac{\pi}{4}\,Ei(-p)$ V. T. 411, N. 9.

15) $\int l\,Sin\,x.Cos\,(p\,Cot\,x)\,\frac{dx}{Sin^2\,x} = \infty$ V. T. 43, N. 5.

16) $\int l\,Sin\,x.Cos\,(p\,l\,Cos\,x)\,\frac{dx}{Tg\,x} = \frac{1}{2p^2} + \frac{\pi}{4p}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}$ V. T. 309, N. 21.

1) $\int l\,Cos\,x \frac{dx}{Sin\,x} = -\frac{1}{8}\pi^2$ V. T. 108, N. 11.

2) $\int l\,Cos\,x \frac{dx}{Cos\,2x} = \frac{1}{8}\pi^2$ (VIII, 544).

3) $\int l\,Cos\,x \frac{dx}{Tg\,x} = -\frac{1}{24}\pi^2$ V. T. 305, N. 11.

4) $\int l\,Cos\,x \frac{Tg^{p-1}x}{Sin\,2x} dx = \frac{\pi}{4(p-1)} Sec \frac{1}{2}p\pi\ [p<1]$ V. T. 45, N. 19.

5) $\int l\,Cos\,x \frac{Cos^{p-1}x}{Sin^{p+1}x} dx = -\frac{\pi}{2p} Cosec \frac{1}{2}p\pi \left[p<\frac{1}{2}\right]$ V. T. 42, N. 1.

6) $\int (l\,Cos\,x)^3 \frac{dx}{Sin\,x} = -\frac{1}{16}\pi^4$ V. T. 109, N. 13.

7) $\int (l\,Cos\,x)^3 \frac{dx}{Tg\,x} = -\frac{1}{240}\pi^4$ V. T. 109, N. 11.

8) $\int (l\,Cos\,x)^5 \frac{dx}{Sin\,x} = -\frac{1}{8}\pi^6$ V. T. 109, N. 22.

9) $\int (l\,Cos\,x)^5 \frac{dx}{Tg\,x} = -\frac{1}{504}\pi^6$ V. T. 109, N. 21.

10) $\int (l\,Cos\,x)^7 \frac{dx}{Sin\,x} = -\frac{17}{32}\pi^8$ V. T. 109, N. 30.

11) $\int (l\,Cos\,x)^{2a-1} \frac{dx}{Sin\,x} = \frac{1-2^{2a}}{4a}\pi^{2a} B_{2a-1}$ V. T. 112, N. 9.

12) $\int (l\,Cos\,x)^{2a} \frac{dx}{Sin\,x} = \frac{2^{2a+1}-1}{2^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$ V. T. 110, N. 12.

13) $\int (l\,Cos\,x)^{2a-1} \frac{dx}{Tg\,x} = -\frac{\pi^{2a}}{4a} B_{2a-1}$ V. T. 110, N. 5.

14) $\int (l\,Cos\,x)^{a-1} \frac{dx}{Tg\,x} = (-1)^{a-1} 2^{-a} 1^{a-1/1} \sum_0^\infty \frac{1}{(n+1)^a}$ V. T. 110, N. 6.

15) $\int (l\,Cos\,x)^{a-1}.Sin^{2q}x \frac{dx}{Tg\,x} = (-1)^{a-1} 2^{-a} 1^{a-1/1} \sum_0^\infty \frac{1}{(q+n+1)^a}$ V. T. 110, N. 7.

16) $\int (l\,Cos\,x)^{p-1}.Cos^{q-1}x \frac{dx}{Tg\,x} = -Cos\,p\pi.\Gamma(p) \sum_0^\infty \frac{1}{(q+2n+1)^p}$ V. T. 110, N. 13.

17) $\int l\,Cos\,x\,.\,Sin(p\,Tg\,x) \frac{dx}{Sin\,2x} = -\frac{\pi}{4} Ei(-p)$ V. T. 411, N. 9.

18) $\int l\,Cos\,x\,.\,Sin(p\,Tg\,x) \frac{dx}{Cos^2 x} = \infty$ V. T. 43, N. 6.

19) $\int l\, Cos\, x\,.\, Cos\,(p\; Tg\, x)\, \frac{dx}{Cos^2 x} = \infty$ V. T. 43, N. 5.

20) $\int l\, Cos\, x\,.\, Cos\,(p\; Cot\, x)\, \frac{dx}{Sin^2 x} = -\frac{\pi}{2p}(1 - e^{-q})$ V. T. 43, N. 18.

21) $\int (l\, Cos\, x)^2 .\, Sin\,(p\, l\, Sin\, x)\, \frac{dx}{Tg\, x} = \infty$ V. T. 310, N. 16.

F. Log. en num. $(l\; Tang\, x)^a$; Circ. Dir. rat. en dén. mon. TABLE 312. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\, Tg\, x\, \frac{dx}{Cos\, 2\, x} = -\frac{1}{4}\pi^2$ (VIII, 544).

2) $\int l\, Tg\, x\, \frac{Tg^p\, x}{Cos\, 2\, x}\, dx = -\left\{\frac{\pi}{2}\, Cosec\left(\frac{p+1}{2}\pi\right)\right\}^2$ $[p^2 < 1]$ V. T. 135, N. 8.

3) $\int l\, Tg\, x\, \frac{dx}{Cos\, 2\, x\,.\, Tg^p\, x} = -\left\{\frac{\pi}{2}\, Cosec\left(\frac{p+1}{2}\pi\right)\right\}^2$ $[p^2 < 1]$ V. T. 135, N. 8.

4) $\int l\, Tg\, x\, \frac{1 - Tg^p\, x}{Cos\, 2\, x}\, dx = \left(\frac{\pi}{2}\, Tg\, \frac{1}{2} p\, \pi\right)^2$ $[p^2 < 1]$ V. T. 135, N. 9.

5) $\int (l\, Tg\, x)^3\, \frac{dx}{Cos\, 2\, x} = -\frac{1}{8}\pi^4$ V. T. 290, N. 10.

6) $\int (l\, Tg\, x)^{2a-1}\, \frac{dx}{Cos\, 2\, x} = \frac{1 - 2^{2a}}{2a}\pi^{2a}\, B_{2a-1}$ V. T. 290, N. 17.

7) $\int (l\, Tg\, x)^{2a}\, \frac{dx}{Cos\, 2\, x} = 0$ V. T. 290, N. 18.

8) $\int l\,(p\; Tg\, x).Sin\,(q\; Tg\, x)\, \frac{dx}{Sin\, 2\, x} = \frac{\pi}{4}\left\{l\frac{p}{q} - A\right\}$ V. T. 411, N. 1.

F. Log. en num. de fonction bin.; Circ. Dir. rat. en dén. mon. TABLE 313. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1 + p\, Sin\, x)\, \frac{dx}{Sin\, x} = \frac{1}{8}\pi^2 - \frac{1}{2}(Arccos\, p)^2$ $[p^2 < 1]$ V. T. 313, N. 8.

2) $\int l(1 + Sin\, x)\, \frac{Cos\, x}{3 - Cos\, 2\, x}\, dx = \frac{\pi}{16}\, l\, 2$ V. T. 114, N. 3.

3) $\int l(1+p\,Sin\,x)\frac{Cos^3 x}{(3-Cos\,2\,x)^2}dx=\frac{1}{8}\frac{1}{1+p^2}\left\{(1+p)^2\,l(1+p)-p\,l2-\frac{1}{2}p^2\pi\right\}$

V. T. 114, N. 23.

4) $\int l(1+Sin^p x)\frac{dx}{Tg\,x}=\frac{1}{12p}\pi^2$ V. T. 114, N. 30.

5) $\int l(1-Sin^p x)\frac{dx}{Tg\,x}=-\frac{1}{6p}\pi^2$ V. T. 114, N. 31.

6) $\int l(1+p\sqrt{Sin\,2\,x})\frac{dx}{Sin\,x}=\frac{1}{4}\pi^2-(Arccos\,p)^2\;[p^2<1]$ (VIII, 423).

7) $\int l(1+p\sqrt{Sin\,2\,x})\frac{dx}{Cos\,x}=\frac{1}{4}\pi^2-(Arccos\,p)^2\;[p^2<1]$ (VIII, 423).

8) $\int l(1+p\,Cos\,x)\frac{dx}{Cos\,x}=\frac{1}{8}\pi^2-\frac{1}{2}(Arccos\,p)^2\;[p^2<1]$ (VIII, 582).

9) $\int l(1+Cos\,x)\frac{Sin\,x}{3+Cos\,2\,x}dx=\frac{\pi}{16}l2$ V. T. 114, N. 3.

10) $\int l(1+p\,Cos\,x)\frac{Sin^3 x}{(3+Cos\,2\,x)^2}dx=\frac{1}{8(1+p^2)}\left\{(1+p)^2\,l(1+p)-p\,l2-\frac{1}{2}p^2\pi\right\}$

V. T. 114, N. 23.

11) $\int l(p^2\,Cos^2 x+q^2\,Sin^2 x)\frac{dx}{Cos^2 x}=\infty$ (VIII, 591).

12) $\int l(1+p^2\,Tg^2 x)\frac{dx}{Cos\,2\,x}=-\pi\,Arctg\,p$ (VIII, 360).

13) $\int l(p^2+Tg^2 x)\frac{dx}{Cos\,2\,x}=-\pi\,Arccot\,p$ (VIII, 360).

14) $\int l(1+p^2\,Cot^2 x)\frac{dx}{Cos\,2\,x}=\pi\,Arctg\,p$ (VIII, 260).

15) $\int l(p^2+Cot^2 x)\frac{dx}{Cos\,2\,x}=\pi\,Arccot\,p$ (VIII, 360).

16) $\int [l(1+p^2\,Tg^2 x)]^2\frac{dx}{Sin^2 x}=4p\pi\,l2$ (VIII, 608).

17) $\int [l(1+p^2\,Cot^2 x)]^2\frac{dx}{Cos^2 x}=4p\pi\,l2$ (VIII, 608).

1) $\int l(Sin\,x\,.\,Cos\,x)\,\frac{dx}{Cos\,2\,x}=0$ (VIII, 544).

2) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Tg^{p-1}\,x}{Sin\,2\,x}\,dx=\pm\frac{\pi}{1-p}\,Cot\,\frac{1}{2}p\pi$ V. T. 45, N. 27.

3) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Tg\,x}=\pm\frac{1}{2}\pi^2$ V. T. 141, N. 13.

4) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Tg^{p-1}x.Sin\,2\,x}=\pm\frac{\pi}{1-p}\,Cot\,\frac{1}{2}p\pi$ V. T. 45, N. 29.

5) $\int l\,Sin\,(p\,Tg\,x)\,\frac{dx}{Cos\,2\,x}=\frac{1}{2}p\pi-\frac{1}{4}\pi^2$ V. T. 418, N. 1.

6) $\int l\,Cos\,(p\,Tg\,x)\,\frac{dx}{Cos\,2\,x}=\frac{1}{2}p\pi$ V. T. 418, N. 2.

7) $\int l\,Tg\,(p\,Tg\,x)\,\frac{dx}{Cos\,2\,x}=-\frac{1}{4}\pi^2$ V. T. 418, N. 3.

8) $\int l(p\,Tg\,x)\,\frac{dx}{Sin^{q-1}\,2\,x}=2^{2q-1}\,lp\,\frac{\{\Gamma(\frac{1}{2}q)\}^2}{\Gamma(q)}$ V. T. 140, N. 6.

9) $\int l(p\,Tg\,x).Sin\,(q\,Cot\,x)\,\frac{dx}{Tg\,x}=\frac{\pi}{4}\,\{e^{-q}\,Ei(q)+e^{q}\,Ei(-q)\}+\frac{\pi}{2}\,e^{-q}\,lp$ V. T. 422, N. 3.

10) $\int l(p\,Tg\,x).Sin\,(q\,Cot\,x)\,\frac{dx}{Cos\,2\,x}=\frac{\pi}{2}\left\{Ci(q).Cos\,q+Si(q).Sin\,q-\frac{\pi}{2}\,Sin\,q\right\}$ V. T. 422, N. 5.

11) $\int l(p\,Cot\,x).Sin\,(q\,Cot\,x)\,\frac{dx}{Tg\,x}=\frac{\pi}{4}\left\{e^{-q}\,\{2\,lp-Ei(p)\}-\frac{\pi}{4}\,e^{q}Ei(-q)\right\}$ V. T. 422, N. 1.

12) $\int l(Tg\,x).Cos\,(p\,Cot\,x)\,\frac{dx}{Cos\,2\,x}=-\frac{\pi}{2}\left\{Ci\,(q)\,.\,Sin\,q-Si(q)\,.\,Cos\,q+\frac{\pi}{2}\,Cos\,q\right\}$ V. T. 422, N. 6.

13) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Sin\,(q\,Cot\,x)\,\frac{dx}{Sin^2\,x}=\pm\frac{2\pi}{q}\,Sin\,q$ V. T. 51, N. 9.

14) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Sin\,(q\,Tg\,x)\,\frac{dx}{Cos^2\,x}=\pm\frac{2\pi}{q}\,Sin\,q$ V. T. 52, N. 6.

15) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Cos\,(q\,Tg\,x)\,\frac{dx}{Cos^2\,x}=\pm\frac{2}{q}\,\{Si\,(q)\,.\,Cos\,q-Ci\,(q)\,.\,Sin\,q\}$ V. T. 51, N. 3.

16) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Tg\,(q\,Tg\,x)\,\frac{dx}{Cos^2\,x}=\pm 2\pi$ V. T. 314, N. 6.

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17) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Cot\,(q\,Tg\,x)\frac{dx}{Cos^2 x}=\pm\frac{\pi-2q}{q}\pi$ V. T. 314, N. 5.

18) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right).Cosec\,(q\,Tg\,x)\frac{dx}{Cos^2 x}=\pm\frac{1}{q}\pi^2$ V. T. 314, N. 7.

19) $\int Sin\,(p\,l\,Sin\,x)\frac{dx}{Cos\,x}=\frac{\pi}{4}\,\frac{1-e^{p\pi}}{1+e^{p\pi}}$ V. T. 402, N. 9.

20) $\int Sin\,(p\,l\,Cos\,x)\frac{dx}{Tg\,x}=\frac{\pi}{4}\,\frac{1+e^{p\pi}}{1-e^{p\pi}}+\frac{1}{2p}$ V. T. 402, N. 10.

21) $\int Sin\,(p\,l\,Sin\,x)\frac{Tg\,x}{Sin^q x}dx=-\sum_1^\infty\frac{p}{(2n-q)^2+p^2}$ V. T. 404, N. 5.

22) $\int Sin\,(p\,l\,Cos\,x)\frac{Cos^q x}{Tg\,x}dx=-\sum_1^\infty\frac{p}{(2n+q)^2+p^2}$ V. T. 402, N. 11.

F. Log. en num. de fonct. fract.; Circ. Dir. rat. en dén. mon. TABLE 315. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\left(\frac{Cos\,2x}{Cos^2 x}\right)^2\frac{Tg^{p-2}x}{Sin\,2x}dx=\frac{\pi}{p-2}\,Cot\,\frac{1}{2}p\pi$ V. T. 134, N. 4.

2) $\int l\left(\frac{Cos\,2x}{Sin^2 x}\right)^2\frac{dx}{Tg^{p-2}x\,.\,Sin\,2x}=\frac{\pi}{p-2}\,Cot\,\frac{1}{2}p\pi$ V. T. 134, N. 13.

3) $\int l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)\frac{dx}{Sin\,x}=\frac{1}{2}\pi^2$ (VIII, 546).

4) $\int l\left(\frac{1+p\,Sin\,x}{1-p\,Sin\,x}\right)\frac{dx}{Sin\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 12.

5) $\int l\left(\frac{1+p\,Sin\,a\,x}{1-p\,Sin\,a\,x}\right)\frac{dx}{Sin\,a\,x}=\pi\,Arcsin\,p$ V. T. 315, N. 4.

6) $\int l\left(\frac{1+Sin\,2x}{1+Cos\,\lambda\,.\,Sin\,2x}\right)\frac{Tg^p x}{Sin\,2x}dx=\frac{\pi}{p}\,Cosec\,p\pi\,.\,(1-Cos\,p\lambda)\;[p<1]$ V. T. 134, N. 17.

7) $\int l\left(\frac{1+Sin\,2x}{1+Cos\,\lambda\,.\,Sin\,2x}\right)\frac{dx}{Tg^p x\,.\,Sin\,2x}=\frac{\pi}{p}\,Cosec\,p\pi\,.\,(1-Cos\,p\lambda)\;[p<1]$ V. T. 134, N. 17.

8) $\int\left\{l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)-2\,Sin\,x\right\}\frac{dx}{Sin^3 x}=\frac{1}{4}\pi^2$ (IV, 444).

9) $\int l\left(\frac{1+p\sqrt{Sin\,2x}}{1-p\sqrt{Sin\,2x}}\right)\frac{dx}{Sin\,x}=2\pi\,Arcsin\,p$ (VIII, 423).

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10) $\int l\left(\frac{1+p\sqrt{Sin\,2x}}{1-p\sqrt{Sin\,2x}}\right)\frac{dx}{Cos\,x}=2\pi\,Arcsin\,p$ (VIII, 423).

11) $\int l\left(\frac{2\,Cos\,x}{1+Cos\,x}\right)\frac{dx}{Sin\,x}=-\frac{1}{12}\pi^2$ V. T. 114, N. 14.

12) $\int l\left(\frac{1+p\,Cos\,x}{1-p\,Cos\,x}\right)\frac{dx}{Cos\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ (VIII, 582).

13) $\int l\left(\frac{1+p\,Cos\,ax}{1-p\,Cos\,ax}\right)\frac{dx}{Cos\,ax}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 5.

14) $\int l\left(\frac{(Sin\,x+Cos\,x)^2}{1+Cos\,\lambda\,.\,Sin\,2x}\right)\frac{dx}{Sin\,2x}=\frac{1}{2}\lambda^2\;[0<\lambda<\pi]$ V. T. 134, N. 15.

15) $\int l\left(\frac{1+Tg\,x}{1-Tg\,x}\right)^2\frac{dx}{Tg\,x}=\frac{1}{2}\pi^2$ (VIII, 286).

16) $\int l\left(\frac{1+p\,Tg\,x}{1-p\,Tg\,x}\right)^2\frac{dx}{Tg\,x}=\pi\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 315, N. 15.

17) $\int l\left(\frac{1+p\,Tg\,ax}{1-p\,Tg\,ax}\right)^2\frac{dx}{Tg\,ax}=\pi\,Arcsin\,p$ V. T. 315, N. 16.

18) $\int l\left(\frac{1+Sin\,(p\,Tg\,x)}{1-Sin\,(p\,Tg\,x)}\right)\frac{dx}{Sin\,2x}=\frac{1}{4}\pi^2$ V. T. 416, N. 1.

19) $\int l\left(\frac{1+Tg\,(p\,Tg\,x)}{1-Tg\,(p\,Tg\,x)}\right)^2\frac{dx}{Sin\,2x}=\frac{1}{4}\pi^2$ V. T. 416, N. 2.

F. Log. en num. Produits; Circ. Dir. rat. en dén. mon. TABLE 316. Lim. 0 et $\frac{\pi}{2}$.

1) $\int (l\,Sin\,x)^2.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{1}{720}\pi^4$ V. T. 305, N. 20.

2) $\int (l\,Sin\,x)^4.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{1}{2520}\pi^6$ V. T. 305, N. 21.

3) $\int (l\,Sin\,x)^{2a}.l\,Cos\,x\frac{dx}{Tg\,x}=-\frac{\pi^{2a+2}}{4(a+1)(2a+1)}B_{2a+1}$ V. T. 305, N. 23.

4) $\int (l\,Tg\,x)^{2a}.l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Sin\,2x}=\pm\frac{1-2^{2a+2}}{(a+1)(2a+1)}\pi^{2a+2}B_{2a+1}$ V. T. 312, N. 6.

5) $\int (l\,Tg\,x)^{2a+1}.l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Sin\,2x}=0$ V. T. 312, N. 7.

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6) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,l\,Tg\,x+1}{Sin\,2\,x}\,Tg^p\,x\,dx=\pm\frac{1}{2}\pi^2\,Cosec^2\left(\frac{p+1}{2}\pi\right)\,[p^2<1]$ V. T. 312, N. 2.

7) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,l\,Tg\,x-1}{Tg^p\,x\,.\,Sin\,2\,x}\,dx=\mp\frac{1}{2}\pi^2\,Cosec^2\left(\frac{p+1}{2}\pi\right)\,[p^2<1]$ V. T. 312, N. 3.

8) $\int l\,Tg\,x.l\left(\frac{1+p\,Sin\,2\,x}{1-p\,Sin\,2\,x}\right)\frac{dx}{Sin\,2\,x}=0\,[p^2\leqq 1]$ V. T. 134, N. 25.

9) $\int l\,Tg\,x\,.\,l(p^2\,Sin^2 x+Cos^2 x)\,\frac{dx}{Sin^2\,x}=\pi(p-1)-p\pi\,lp$ V. T. 134, N. 24.

10) $\int l\,Tg\,x\,.\,l(1+p\,Tg^2\,x)\,\frac{dx}{Sin^2\,x}=p\pi(1-lp)$ (VIII, 609).

11) $\int l\,Tg\,x\,.\,l(Sin^2\,x+p^2\,Cos^2\,x)\,\frac{dx}{Cos^2\,x}=\pi(1-p)+p\pi\,lp$ V. T. 134, N. 24.

12) $\int l\,Tg\,x\,.\,l(1+p\,Cot^2\,x)\,\frac{dx}{Cos^2\,x}=p\pi(lp-1)$ (VIII, 609).

13) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\,\frac{dx}{Sin^2\,x}=2\pi\frac{pq+1}{q}\,l(1+pq)-2p\pi$ (VIII, 608).

14) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\,\frac{dx}{Cos^2\,x}=2\pi\frac{pq+1}{p}\,l(1+pq)-2q\pi$ (VIII, 609).

15) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\,\frac{dx}{Sin^2\,2\,x}=\frac{p+q}{2}\pi\left\{\frac{pq+1}{pq}\,l(1+pq)-1\right\}$
V. T. 316, N. 13, 14.

16) $\int l(1+p^2\,Tg^2\,x)\,.\,l(1+q^2\,Cot^2\,x)\,\frac{Cos\,2\,x}{Sin^2\,2\,x}\,dx=\frac{p-q}{2}\pi\left\{\frac{pq+1}{pq}\,l(1+pq)-1\right\}$
V. T. 316, N. 13, 14.

F. Log. en num. de Circ. Dir. mon.; Circ. Dir. rat. en dén. bin. TABLE 317. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x\,\frac{Sin^{p-1}\,x\,.\,Cos\,x}{1+Sin^p\,x}\,dx=-\frac{1}{12p^2}\pi^2$ V. T. 313, N. 4.

2) $\int l\,Sin\,x\,\frac{Sin^{p-1}\,x\,.\,Cos\,x}{1-Sin^p\,x}\,dx=-\frac{1}{6p^2}\pi^2$ V. T. 313, N. 5.

3) $\int l\,Sin\,x\,\frac{Cot\,x}{Sin^p\,x-Cosec^p\,x}\,dx=\frac{\pi^2}{4p^2}$ V. T. 317, N. 1, 2.

4) $\int l\,Sin\,x\,\frac{dx}{p^2\,Sin^2\,x+q^2\,Cos^2\,x}=\frac{\pi}{2pq}\,l\frac{q}{p+q}$ (VIII, 274).

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5) $\int l\,Sin\,x \frac{1+Cos^2\lambda\,.\,Sin^2 x}{(Sin^2\lambda\,.\,Sec\,x+Cos^2\lambda\,.\,Cos\,x)^2}\,\frac{dx}{Cos\,x}=Sec\,\lambda\,.\,l\,Tg\,\frac{1}{2}\lambda$ V. T. 47, N. 12.

6) $\int l\,Sin\,x\,\frac{Sin\,x\,.\,Tg\,x}{1+Sin^4 x}\,dx=-\frac{\pi^2}{16\,(2+\sqrt{2})}$ V. T. 112, N. 21.

7) $\int l\,Sin\,2x\,\frac{dx}{p^2\,Sin^2 x+q^2\,Cos^2 x}=\frac{\pi}{pq}\,l\,\frac{\sqrt{2pq}}{p+q}$ (VIII, 274*).

8) $\int l\,Cos\,x\,\frac{Cos^{p-1}x\,.\,Sin\,x}{1+Cos^p x}\,dx=-\frac{1}{12p^2}\pi^2$ V. T. 309, N. 20.

9) $\int l\,Cos\,x\,\frac{Cos^{p-1}x\,.\,Sin\,x}{1-Cos^p x}\,dx=-\frac{1}{6p^2}\pi^2$ V. T. 309, N. 21.

10) $\int l\,Cos\,x\,\frac{dx}{p^2\,Sin^2 x+q^2\,Cos^2 x}=\frac{\pi}{2pq}\,l\,\frac{p}{p+q}$ (VIII, 274).

11) $\int l\,Cos\,x\,\frac{Tg\,x}{1+Sec^p x}\,dx=-\frac{1}{12}\left(\frac{\pi}{p}\right)^2$ V. T. 309, N. 20.

12) $\int l\,Cos\,x\,\frac{Tg\,x}{1-Sec^p x}\,dx=\frac{1}{6}\left(\frac{\pi}{p}\right)^2$ V. T. 309, N. 21.

13) $\int l\,Cos\,x\,\frac{Tg\,x}{Cos^p x-Sec^p x}\,dx=\left(\frac{\pi}{2p}\right)^2$ V. T. 317, N. 11, 12.

14) $\int l\,Tg\,x\,\frac{dx}{p^2\,Sin^2 x+q^2\,Cos^2 x}=\frac{\pi}{2pq}\,l\,\frac{q}{p}$ (VIII, 274).

15) $\int l\,Tg\,x\,\frac{Sin^2 x}{p^2\,Sin^2 x+q^2\,Cos^2 x}\,dx=\frac{q\pi}{2p\,(p^2-q^2)}\,l\,\frac{p}{q}$ V. T. 307, N. 1 et T. 317, N. 12.

16) $\int l\,Tg\,x\,\frac{Cos^2 x}{p^2\,Sin^2 x+q^2\,Cos^2 x}\,dx=\frac{p\pi}{2q\,(p^2-q^2)}\,l\,\frac{q}{p}$ V. T. 307, N. 1 et T. 317, N. 12.

17) $\int l\,Tg\,x\,\frac{Cos\,2x}{p^2\,Sin^2 x+q^2\,Cos^2 x}\,dx=\frac{\pi}{2q\,(p-q)}\,l\,\frac{q}{p}$ V. T. 317, N. 13, 14.

18) $\int (l\,Tg\,x)^2\,\frac{dx}{Sin^4 x+Cos^4 x}=\frac{3}{32}\pi^3\sqrt{2}$ (VIII, 568).

19) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,2x}{1+p\,Cos\,2x}\,dx=\pm\frac{\pi}{p}\,Arcsin\,p\;[p^2\leqq 1]$ V. T. 331, N. 1.

20) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Cos\,2x}{Sin^2 x+p^2\,Cos^2 x}\,dx=\pm\pi\left(Arccot\,p-\frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

21) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Cos\,2x}{p^2\,Sin^2 x+Cos^2 x}\,dx=\mp\pi\left(Arccot\,p-\frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

F. Log. en num. de Circ. Dir. mon.; Circ. Dir. rat. en dén. bin. **TABLE 317**, suite. Lim. 0 et $\frac{\pi}{2}$.

22) $\int l\, Tg^2 \left(\frac{\pi}{4} \pm x\right) \frac{Tg\, x}{Sin^2 x + p^2\, Cos^2 x}\, dx = \pm\, 2\pi\, Arccotp$ (VIII, 600).

23) $\int l\, Tg^2 \left(\frac{\pi}{4} \pm x\right) \frac{Tg\, x}{p^2\, Sin^2 x + Cos^2 x}\, dx = \pm \frac{2\pi}{p^2}\, Arctgp$ (VIII, 599).

24) $\int l\, Tg^2 \left(\frac{\pi}{4} \pm x\right) \frac{Cot\, x}{Sin^2 x + p^2\, Cos^2 x}\, dx = \pm \frac{2\pi}{p^2}\, Arctgp$ (VIII, 599).

25) $\int l\, Tg^2 \left(\frac{\pi}{4} \pm x\right) \frac{Cot\, x}{p^2\, Sin^2 x + Cos^2 x}\, dx = \pm\, 2\pi\, Arccotp$ (VIII, 599).

26) $\int l\, Tg^2 \left(\frac{\pi}{4} \pm x\right) \frac{Sin\, 4x}{(1-p)^2 + 4p\, Sin^2 2x}\, dx = 0\ [p < 1]$ V. T. 331, N. 4.

27) $\int l\, l\, Tg\, x \frac{dx}{2 + Sin\, 2x} = \frac{\pi}{2\sqrt{3}}\, l \left(\frac{\Gamma\left(\frac{2}{3}\right)}{\Gamma\left(\frac{1}{3}\right)} \sqrt[3]{2\pi}\right)$ V. T. 148, N. 2.

F. Log. en num. de Circ. Dir. bin.; Circ. Dir. rat. en dén. bin. **TABLE 318.** Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1 + p^2\, Tg^2 x) \frac{dx}{q^2\, Sin^2 x + r^2\, Cos^2 x} = \frac{\pi}{qr}\, l \frac{q + pr}{q}$ (VIII, 418).

2) $\int l(p^2 + Tg^2 x) \frac{dx}{q^2\, Sin^2 x + r^2\, Cos^2 x} = \frac{\pi}{qr}\, l \frac{r + pq}{q}$ (VIII, 605).

3) $\int l(1 + p^2\, Cot^2 x) \frac{dx}{q^2\, Sin^2 x + r^2\, Cos^2 x} = \frac{\pi}{qr}\, l \frac{r + pq}{r}$ (VIII, 418).

4) $\int l(p^2 + Cot^2 x) \frac{dx}{q^2\, Sin^2 x + r^2\, Cos^2 x} = \frac{\pi}{qr}\, l \frac{q + pr}{q}$ (VIII, 605*).

5) $\int l \left(\frac{1 - Cos\,\mu \,.\, Sin\, x}{1 + Cos\,\mu \,.\, Sin\, x}\right) \frac{Sin\, x}{1 - Cos^2 \lambda \,.\, Sin^2 x}\, dx = 2\pi\, Cosec\, 2\lambda \,.\, l \left\{ Sin \left\{\frac{1}{2}(\mu + \lambda)\right\} . Sec \left\{\frac{1}{2}(\mu - \lambda)\right\}\right\}$
V. T. 122, N. 8*.

6) $\int l \left(\frac{1 - q\, Sin\, x}{1 + q\, Sin\, x}\right) \frac{Sin\, x}{1 - p\, Sin^2 x}\, dx = \frac{\pi}{\sqrt{p(1-p)}}\, l \frac{q\sqrt{p} - \{1 - \sqrt{1-p}\}\{1 - \sqrt{1-q^2}\}}{q\sqrt{p} + \{1 - \sqrt{1-p}\}\{1 - \sqrt{1-q^2}\}}$
V. T. 122, N. 8.

7) $\int l \left(\frac{1 - Cothp^2 \lambda \,.\, Sin^2 x}{1 + Cothp^2 \lambda \,.\, Sin^2 x}\right) \frac{Cos\, x}{1 - Coshp^2 \lambda \,.\, Cos^2 x}\, dx = \frac{2\lambda\, l\, Sinhp\, \lambda}{Sinhp\, \lambda \,.\, Coshp\, \lambda}$ V. T. 122, N. 8*.

8) $\int l \left(\frac{1 + Cos\,\mu \,.\, Cos\, x}{1 - Cos\,\mu \,.\, Cos\, x}\right) \frac{dx}{1 + Cos\,\lambda \,.\, Cos\, x} = 2\pi\, Cosec\, \lambda \,.\, l \left\{ Cos \left(\frac{\pi}{4} - \frac{1}{2}\lambda\right) . Sec \left\{\frac{1}{2}(\lambda - \mu)\right\}\right\}$ (IV, 448).
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9) $\int l\left(\frac{1-Cos\,\lambda\,.\,Cos\,x}{1+Cos\,\lambda\,.\,Cos\,x}\right)\frac{Cos\,x}{1-Cos^2\lambda\,.\,Cos^2 x}\,dx = 2\,\pi\,Cosec\,2\,\lambda\,.\,l\,Sin\,\lambda$ (IV, 448).

10) $\int l\left(\frac{1+p\,Cos\,x}{1-p\,Cos\,x}\right)\frac{Cos\,x}{1-q\,Cos^2 x}\,dx = \frac{\pi}{\sqrt{q(1-q)}}\,l\frac{p\sqrt{q}+\{1+\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q}-\{1+\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

11) $\int l\left(\frac{1+Coshp\,\lambda\,.\,Cos\,x}{1-Coshp\,\lambda\,.\,Cos\,x}\right)\frac{Cos\,x}{1-Coshp^2\lambda\,.\,Cos^2 x}\,dx = \frac{-\pi\,l\,Sinhp\,\lambda}{Sinhp\,\lambda\,.\,Coshp\,\lambda}$ (IV, 449).

12) $\int l\left(\frac{1+Cos\,\mu\,.\,Cos\,x}{1-Cos\,\mu\,.\,Cos\,x}\right)\frac{dx}{1-Cos^2\lambda\,.\,Cos^2 x} = \pi\,Cosec\,\lambda\,.\,l\,\frac{1+Sin\,\lambda}{Sin\,\lambda+Sin\,\mu}$ (IV, 449).

13) $\int l\left(\frac{1+Cos\,\mu\,.\,Cos\,x}{1-Cos\,\mu\,.\,Cos\,x}\right)\frac{Cos\,x}{1-Cos^2\lambda\,.\,Cos^2 x}\,dx = 2\pi\,Cosec\,2\lambda\,.\,l\left\{Cos\left\{\frac{1}{2}(\lambda-\mu)\right\}.\,Cosec\left\{\frac{1}{2}(\lambda+\mu)\right\}\right\}$ V. T. 122, N. 8*.

14) $\int l\left(\frac{1+Coshp\,\mu\,.\,Cos\,x}{1-Coshp\,\mu\,.\,Cos\,x}\right)\frac{Cos\,x}{1-Cos^2\lambda.Cos^2 x}\,dx = 2\,\pi\,Cosec\,2\,\lambda\,.\,l\left\{Cothp\left[\frac{1}{2}\,Arccoshp\left(\frac{Coshp\,\mu}{Cos\,\lambda}\right)\right].\,Tghp\left[\frac{1}{2}\,Arccoshp\left(\frac{Tg\,\lambda}{Tghp\,\mu}\right)\right]\right\}$ (IV, 449).

F. Log. en num.; Circ. Dir. rat. en dén. puiss. de bin. TABLE 319. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x\,\frac{dx}{(Sin\,x \pm p\,Cos\,x)^2} = \frac{1}{p(1+p^2)}\left\{\pm\,lp - \frac{1}{2}p\pi\right\}$ V. T. 47, N. 2.

2) $\int l\,Sin\,x\,\frac{q^2\,Sin^2 x - p^2\,Cos^2 x}{(p^2\,Cos^2 x + q^2\,Sin^2 x)^2}\,dx = \frac{\pi q}{2p(p+q)}$ V. T. 47, N. 13.

3) $\int l\,Sin\,x\,\frac{Sin\,2\,x}{(p\,Sin^2 x + q\,Cos^2 x)^2}\,dx = \frac{1}{2\,q\,(p-q)}\,l\frac{p}{q}$ V. T. 47, N. 17.

4) $\int l\left(\frac{1}{2}\,Sin\,2x\right)\frac{dx}{(Sin\,x \pm p\,Cos\,x)^2} = \mp\frac{\pi}{1+q^2} \pm \frac{1-q^2}{1+q^2}\,\frac{1}{q}\,lq$ V. T. 47, N. 1, 2.

5) $\int l\left(\frac{1}{2}\,Sin\,2\,x\right)\frac{Sin\,2\,x}{(p\,Sin^2 x + q\,Cos^2 x)^2}\,dx = \frac{1}{2pq}\,\frac{p+q}{p-q}\,l\frac{p}{q}$ V. T. 319, N. 2, 7.

6) $\int l\,Cos\,x\,\frac{dx}{(Sin\,x \pm p\,Cos\,x)^2} = \frac{p}{1+p^2}\left\{\mp\,lp - \frac{\pi}{2p}\right\}$ V. T. 47, N. 1.

7) $\int l\,Sin\,x\,\frac{Sin\,2\,x}{(p\,Sin^2 x + q\,Cos^2 x)^2}\,dx = \frac{1}{2p\,(p-q)}\,l\frac{p}{q}$ V. T. 47, N. 17.

8) $\int l\,Cos\,x\,\frac{p^2\,Sin^2\,x-q^2\,Cos^2\,x}{(p^2\,Sin^2\,x+q^2\,Cos^2\,x)^2}\,dx=\frac{-\pi q}{2p\,(p+q)}$ V. T. 47, N. 13.

9) $\int l\,Cos\,x\,\frac{Cos^p\,x-Sec^p\,x}{(Cos^p\,x+Sec^p\,x)^2}\,Tg\,x\,dx=\frac{\pi}{4p^2}$ V. T. 47, N. 28.

10) $\int l\,Cos\,x\,\frac{Cos^p\,x}{(1-Cos\,x)^{p+1}}\,Tg\,x\,dx=-\frac{\pi}{p}\,Cosec\,p\pi$ V. T. 48, N. 6.

11) $\int l\,Tg\,x\,\frac{dx}{(p\,Sin\,x\pm Cos\,x)^2}=\mp\frac{1}{p}\,lp$ V. T. 139, N. 1.

12) $\int l\,Tg\,x\,\frac{dx}{(Sin\,x\pm p\,Cos\,x)^2}=\pm\frac{1}{p}\,lp$ V. T. 47, N. 1, 2.

13) $\int l\,Tg\,x\,\frac{Sin\,2\,x}{(p\,Sin^2\,x+q\,Cos^2\,x)^2}\,dx=\frac{1}{2pq}\,l\frac{q}{p}$ V. T. 47, N. 17.

14) $\int (l\,Tg\,x)^2\,\frac{dx}{(Sin\,x-Cos\,x)^2}=\frac{2}{3}\pi^2$ V. T. 139, N. 4.

15) $\int l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Sin\,2\,x}{(p\,Sin^2\,x+q\,Cos^2\,x)^2}\,dx=\pm\frac{2}{p+q}\,\frac{\pi}{\sqrt{pq}}$ V. T. 47, N. 16.

TABLE 320.

F. Log. en num.; Circ. Dir. rat. en dén. composé. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x\,\frac{Sin^p\,x}{1+Sin^p\,x}\,\frac{dx}{Tg\,x}=-\frac{1}{12p^2}\pi^2$ V. T. 313, N. 4.

2) $\int l\,Sin\,x\,\frac{Sin^p\,x}{1-Sin^p\,x}\,\frac{dx}{Tg\,x}=-\frac{1}{6p^2}\pi^2$ V. T. 313, N. 5.

3) $\int l\,Sin\,x\,\frac{1}{Sin^p\,x-Cosec^p\,x}\,\frac{dx}{Tg\,x}=\left(\frac{\pi}{2p}\right)^2$ V. T. 320, N. 1, 2.

4) $\int l\,Sin\,x\,\frac{Sin^p\,x-Cosec^p\,x}{(Sin^p\,x+Cosec^p\,x)^2}\,\frac{dx}{Tg\,x}=\frac{\pi}{4p^2}$ V. T. 49, N. 14.

5) $\int l\,Sin\,x\,\frac{Sin^p\,x}{(1-Sin\,x)^{p+1}}\,\frac{dx}{Tg\,x}=-\frac{\pi}{p}\,Cosec\,p\pi$ V. T. 49, N. 27.

6) $\int l\,Cos\,x\,\frac{Cos\,x}{1+Cos^4\,x}\,\frac{dx}{Tg\,x}=-\frac{\pi^2}{16\,(2+\sqrt{2})}$ V. T. 112, N. 21.

7) $\int l\,Tg\,x\,\frac{Tg^p\,x}{Sin\,x+Cos\,x}\,\frac{dx}{Sin\,x}=-\pi^2\,Cos\,p\pi\,.\,Cosec^2\,p\pi\;[p<1]$ V. T. 312, N. 2 et T. 320, N. 8.
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8) $\int l\,Tg\,x \frac{Tg^p\,x}{Sin\,x - Cos\,x} \frac{dx}{Sin\,x} = \pi^2\,Cosec^2\,p\pi\;[p<1]$ V. T. 140, N. 1.

9) $\int l\,Tg\,x \frac{1}{Sin\,x + Cos\,x} \frac{dx}{Cos\,x\,.\,Tg^p\,x} = -\pi^2\,Cos\,p\pi\,.\,Cosec^2\,p\pi$ V. T. 312, N. 3 et T. 320, N. 10.

10) $\int l\,Tg\,x \frac{1}{Sin\,x - Cos\,x} \frac{dx}{Cos\,x\,.\,Tg^p\,x} = \pi^2\,Cosec^2\,p\pi\;[p<1]$ V. T. 140, N. 2.

11) $\int l\,Tg\,x \frac{Tg^q\,x - Cot^q\,x}{Tg^p\,x + Cot^p\,x} \frac{dx}{Sin\,2x} = 0$ V. T. 292, N. 8.

12) $\int l\,Tg\,x \frac{Tg^q\,x + Cot^q\,x}{Tg^p\,x - Cot^p\,x} \frac{dx}{Sin\,2x} = 0$ V. T. 292, N. 9.

13) $\int l\,Tg\,x \frac{Cos\,2x}{1 + Sin\,2x} \frac{dx}{1 + Cos\,\lambda\,.\,Sin\,2x} = \frac{\lambda^2}{Cos\,\lambda - 1}$ V. T. 331, N. 2.

14) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{Sin\,2x}{(p^2\,Tg^2\,x + q^2)^2} \frac{dx}{Cos^4\,x} = \pm\frac{\pi}{pq}\,\frac{2}{p^2 + q^2}$ V. T. 49, N. 4.

15) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{(Sin^2\,x + p^2\,Cos^2\,x)^2} \frac{dx}{Tg\,x} = \pm\frac{2\pi}{p^2}\,Arctg\,p$ V. T. 313, N. 14.

16) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{Sin^2\,x + p^2\,Cos^2\,x} \frac{dx}{Sin\,2x} = \pm\pi\left(Arccot\,p + \frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

17) $\int l\,Tg^2\left(\frac{\pi}{4} \pm x\right) \frac{1}{p^2\,Sin^2\,x + Cos^2\,x} \frac{dx}{Sin\,2x} = \pm\pi\left(Arccot\,p + \frac{1}{p^2}\,Arctg\,p\right)$ (VIII, 600).

18) $\int l(1 + q^2\,Tg^2\,x) \frac{1}{p^2\,Sin^2\,x + r^2\,Cos^2\,x} \frac{dx}{s^2\,Sin^2\,x + t^2\,Cos^2\,x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p^2 - r^2}{pr}\,l\left(1 + \frac{qr}{p}\right) + \frac{t^2 - s^2}{st}\,l\left(1 + \frac{qt}{s}\right)\right\}$ V. T. 320, N. 20, 21.

19) $\int l(1 + q^2\,Tg^2\,x) \frac{Cos\,2x}{p^2\,Sin^2\,x + r^2\,Cos^2\,x} \frac{dx}{s^2\,Sin^2\,x + t^2\,Cos^2\,x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p^2 + r^2}{pr}\,l\left(1 + \frac{qr}{p}\right) - \frac{s^2 + t^2}{st}\,l\left(1 + \frac{qt}{s}\right)\right\}$ V. T. 320, N. 20, 21.

20) $\int l(1 + q^2\,Tg^2\,x) \frac{Sin^2\,x}{p^2\,Sin^2\,x + r^2\,Cos^2\,x} \frac{dx}{s^2\,Sin^2\,x + t^2\,Cos^2\,x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{t}{s}\,l\left(1 + \frac{qt}{s}\right) - \frac{r}{p}\,l\left(1 + \frac{qr}{p}\right)\right\}$ (VIII, 545).

21) $\int l(1 + q^2\,Tg^2\,x) \frac{Cos^2\,x}{p^2\,Sin^2\,x + r^2\,Cos^2\,x} \frac{dx}{s^2\,Sin^2\,x + t^2\,Cos^2\,x} = \frac{\pi}{p^2 t^2 - s^2 r^2}$
$\left\{\frac{p}{r}\,l\left(1 + \frac{qr}{p}\right) - \frac{s}{t}\,l\left(1 + \frac{qt}{s}\right)\right\}$ (VIII, 545).

1) $\int l\,Sin\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2(1-p^2)} l\frac{1-p}{2} [p^2<1], = \frac{\pi}{2(p^2-1)} l\frac{p-1}{2p} [p^2>1]$ V. T. 321, N. 8.

2) $\int l\,Sin\,x \frac{Cos\,2x}{1-p\,Cos\,2x+p^2} dx = \frac{\pi}{2p(1-p^2)} \left\{\frac{1+p^2}{2} l(1-p) - p^2\,l2\right\} [p^2<1], =$

$= \frac{\pi}{2p(p^2-1)} \left\{\frac{1+p^2}{2} l\frac{p-1}{p} - l2\right\} [p^2>1]$ V. T. 321, N. 9.

3) $\int l\,Sin\,x \frac{dx}{1-2p\,Cos\,4x+p^2} = \frac{\pi}{4(1-p^2)} l\frac{1-p}{4} [p<1], = \frac{\pi}{4(p^2-1)} l\frac{p-1}{4p} [p>1]$ V. T. 321, N. 1.

4) $\int l\,Sin\,x \frac{Cos\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8(1-p)\sqrt{p}} l\frac{1-\sqrt{p}}{1+\sqrt{p}} [p<1], = \frac{\pi}{8(p-1)\sqrt{p}} l\frac{\sqrt{p}-1}{\sqrt{p}+1}$ $[p>1]$ V. T. 321, N. 1.

5) $\int l\,Sin\,x \frac{Cos^2\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8p(1-p)} \left\{\frac{1+p}{2} l(1-p) - 2p\,l2\right\} [p<1], =$

$= \frac{\pi}{8p(p-1)} \left\{\frac{1+p}{2} l\frac{p-1}{p} - 2\,l2\right\} [p>1]$ V. T. 321, N. 2.

6) $\int l\,Sin\,x \frac{Cos\,4x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8p(1-p^2)} \left\{(1+p^2)\,l(1-p) - 4p^2\,l2\right\} [p<1], =$

$= \frac{\pi}{8p(p^2-1)} \left\{(1+p^2)\,l\frac{p-1}{p} - 4\,l2\right\} [p>1]$ V. T. 321, N. 2.

7) $\int l\,Sin\,x \frac{(1+p^2)\,Cos\,2x - 2p}{(1-2p\,Cos\,2x+p^2)^2} dx = \frac{\pi}{4(p-1)} [p^2<1], = \frac{\pi}{4(1-p)} [p^2>1]$ V. T. 50, N. 2.

8) $\int l\,Cos\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2(1-p^2)} l\frac{1+p}{2} [p^2<1], = \frac{\pi}{2(p^2-1)} l\frac{1+p}{2p} [p^2>1]$ (VIII, 678).

9) $\int l\,Cos\,x \frac{Cos\,2x}{1-2p\,Cos\,2x+p^2} dx = \frac{\pi}{2p(1-p^2)} \left\{\frac{1+p^2}{2} l(1+p) - p^2\,l2\right\} [p^2<1], =$

$= \frac{\pi}{2p(p^2-1)} \left\{\frac{1+p^2}{2} l\frac{p+1}{p} - l2\right\} [p^2>1]$ (VIII, 678).

10) $\int l\,Cos\,x \frac{dx}{1-2\,Cos\,4x+p^2} = \frac{\pi}{4(1-p^2)} l\frac{1-p}{4} [p<1], = \frac{\pi}{4(p^2-1)} l\frac{p-1}{4p} [p>1]$ V. T. 321, N. 8.

11) $\int l\,Cos\,x \frac{Cos\,2x}{1-2p\,Cos\,4x+p^2} dx = \frac{\pi}{8(1-p)\sqrt{p}} l\frac{1+\sqrt{p}}{1-\sqrt{p}} [p<1], = \frac{\pi}{8(p-1)\sqrt{p}} l\frac{\sqrt{p}+1}{\sqrt{p}-1}$ $[p>1]$ V. T. 321, N. 8.

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12) $\int l\,Cos\,x \frac{Cos^2 2x}{1-2p\,Cos\,4x+p^2}\,dx = \frac{\pi}{8p(1-p)}\left\{\frac{1+p}{2}\,l(1-p)-2p\,l2\right\}\,[p<1], =$

$= \frac{\pi}{8p(p-1)}\left\{\frac{1+p}{2}\,l\frac{p-1}{p}-2\,l2\right\}\,[p>1]$ V. T. 321, N. 9.

13) $\int l\,Cos\,x \frac{Cos\,4x}{1-2p\,Cos\,4x+p^2}\,dx = \frac{\pi}{8p(1-p^2)}\left\{(1+p^2)\,l(1-p)-4p^2\,l2\right\}\,[p<1], =$

$= \frac{\pi}{8p(p^2-1)}\left\{(1+p^2)\,l\frac{p-1}{p}-4\,l2\right\}\,[p>1]$ V. T. 321, N. 9.

14) $\int l\,Cos\,x \frac{(1+p^2)\,Cos\,2x-2p}{(1-2p\,Cos\,2x+p^2)^2}\,dx = \frac{\pi}{4(1+p)}$ V. T. 50, N. 1.

15) $\int l\,Tg\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{2(1-p^2)}\,l\frac{1-p}{1+p}\,[p^2<1], = \frac{\pi}{2(p^2-1)}\,l\frac{p-1}{p+1}\,[p^2>1]$
V. T. 321, N. 1, 8.

16) $\int l\,Tg\,x \frac{Cos\,2x}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{4p}\,\frac{1+p^2}{1-p^2}\,l\frac{1-p}{1+p}\,[p^2<1], = \frac{\pi}{4p}\,\frac{p^2+1}{p^2-1}\,l\frac{p-1}{p+1}\,[p^2>1]$
V. T. 321, N. 2, 9.

17) $\int l\,Tg\,x \frac{dx}{1-2p\,Cos\,4x+p^2} = 0$ V. T. 321, N. 3, 10.

18) $\int l\,Tg\,x \frac{Cos\,2x}{1-2p\,Cos\,4x+p^2}\,dx = \frac{\pi}{4(1-p)\sqrt{p}}\,l\frac{1-\sqrt{p}}{1+\sqrt{p}}\,[p<1], = \frac{\pi}{4(p-1)\sqrt{p}}\,l\frac{\sqrt{p}-1}{\sqrt{p}+1}$
$[p>1]$ V. T. 321, N. 4, 11.

19) $\int l\,Tg\,x \frac{Cos^2 2x}{1-2p\,Cos\,4x+p^2}\,dx = 0$ V. T. 321, N. 5, 12.

20) $\int l\,Tg\,x \frac{Cos\,4x}{1-2p\,Cos\,4x+p^2}\,dx = 0$ V. T. 321, N. 6, 13.

21) $\int l\,Tg\,x \frac{(1+p^2)\,Cos\,2x-2p}{(1-2p\,Cos\,2x+p^2)^2}\,dx = \frac{\pi}{2(p^2-1)}\,[p^2<1], = \frac{\pi}{2(1-p^2)}\,[p^2>1]$
V. T. 321, N. 7, 14.

F. Log. en num. de Circ. Dir. mon.; Circ. Dir. irrat. TABLE 322. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l\,Sin\,x \frac{Sin\,x}{\sqrt{1+Sin^2 x}}\,dx = -\frac{\pi}{8}\,l2$ V. T. 118, N. 3.

2) $\int l\,Sin\,x \frac{Sin^3 x}{\sqrt{1+Sin^2 x}}\,dx = \frac{1}{4}(l2-1)$ V. T. 118, N. 4.

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3) $\int l\,Sin\,x \frac{dx}{\sqrt{1-p^2\,Sin^2 x}} = -\frac{1}{2}\,lp\,.\,F'(p) - \frac{\pi}{4}\,F'\{\sqrt{1-p^2}\}\;[p^2<1]$ (VIII, 354).

4) $\int l\,Sin\,x \frac{(1-Sin\,x)^{p-\frac{1}{2}}}{Sin^{p-\frac{1}{2}}x\,.\,Tg\,x}\,dx = -\frac{2\pi}{2p-1}\,Sec\,p\pi$ V. T. 55, N. 14.

5) $\int l\,Sin\,x \frac{Sin^{p-\frac{1}{2}}x}{(1-Sin\,x)^{p+\frac{1}{2}}}\,\frac{dx}{Tg\,x} = \frac{2\pi}{2p-1}\,Sec\,p\pi$ V. T. 61, N. 4.

6) $\int l\,Cos\,x \frac{Cos\,x}{\sqrt{1+Cos^2 x}}\,dx = -\frac{1}{8}\pi\,l2$ V. T. 118, N. 3.

7) $\int l\,Cos\,x \frac{Cos^3 x}{\sqrt{1+Cos^2 x}}\,dx = \frac{1}{4}(l2-1)$ V. T. 118, N. 4.

8) $\int l\,Cos\,x \frac{(1-Cos\,x)^{p-\frac{3}{2}}}{Cos^{p+\frac{1}{2}}x}\,Sin\,x\,dx = \frac{2\pi}{1-2p}\,Sec\,p\pi$ V. T. 55, N. 14.

9) $\int l\,Cos\,x \frac{dx}{\sqrt{1-p^2\,Sin^2 x}} = \frac{1}{4}\,F'(p).l\frac{1-p^2}{p^2} - \frac{\pi}{4}\,F'\{\sqrt{1-p^2}\}\;[p^2<1]$ (VIII, 354).

10) $\int l\,Cos\,x \frac{Cos^{p-\frac{3}{2}}x}{(1-Cos\,x)^{p+\frac{1}{2}}}\,Sin\,x\,dx = -\frac{2\pi}{1-2p}\,Sec\,p\pi$ V. T. 56, N. 11.

11) $\int l\,Tg\,x \frac{dx}{\sqrt{1-p^2\,Sin^2 x}} = -\frac{1}{2}\,l(1-p^2)\,.\,F'(p)\;[p^2<1]$ (VIII, 264).

12) $\int l\,Cot\,\frac{1}{2}x \frac{Sin\,x}{Sin^2\lambda + Tg^2\mu\,.\,Sin^2 x}\,\frac{Cos\,x}{\sqrt{Sin^2\lambda - Sin^2 x}}\,dx = \frac{\pi}{2}\,\frac{Cos^2\mu}{Sin\,\lambda\,.\,Sin\,\mu}\,l\frac{Sin\,\mu + \sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{Sin\,\mu\,.\,(1+Sin\,\lambda)}$ (IV, 453).

F. Log. en num. $l(1-p^2\,Sin^2 x)$; Circ. Dir. irrat. en dén. $\sqrt{1-p^2\,Sin^2 x}$, $\sqrt{1-p^2\,Sin^2 x}^{\,3}$; $[p^2<1]$. TABLE 323. Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1-p^2\,Sin^2 x) \frac{dx}{\sqrt{1-p^2\,Sin^2 x}} = \frac{1}{2}\,l(1-p^2)\,.\,F'(p)$ (VIII, 353).

2) $\int l(1-p^2\,Sin^2 x) \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}}\,dx = \frac{1}{p^2}\left[\{2-l(1-p^2)\}\sqrt{1-p^2}-2\right]$ (M, D. 16, 28).

3) $\int l(1-p^2\,Sin^2 x) \frac{Sin^2 x}{\sqrt{1-p^2\,Sin^2 x}}\,dx = \frac{1}{p^2}\left[\left\{p^2-2+\frac{1}{2}l(1-p^2)\right\}F'(p)+\left\{2-\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$ (VIII, 424).

4) $\int l(1-p^2\,Sin^2 x) \frac{Sin^2 x\,.\,Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}}\,dx = \frac{1}{9p^4}\left[\left\{(16-16p^2+3p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\right\}F'(p)+\right.$
$\left.+\left\{2(1-5p^2)-\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}E'(p)\right].$

$$5)\int l(1-p^2 Sin^2 x)\frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}}dx=\frac{1}{9p^4}\Big[\Big\{-2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)l(1-p^2)\Big\}$$
$$F'(p)+\{2(8+5p^2)-3(1+p^2)l(1-p^2)\}E'(p)\Big].$$

Sur 4) et 5) voyez M, D. 16, 28.

$$6)\int l(1-p^2 Sin^2 x)\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}dx=\frac{1}{p^2}\Big[\Big\{2-p^2-\frac{1}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-$$
$$-\Big\{2-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 424).

$$7)\int l(1-p^2 Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}}dx=\frac{1}{9p^4}\Big[-\Big\{2(8-17p^2+6p^4)+\frac{3}{2}(1+3p^2)(1-p^2)$$
$$l(1-p^2)\Big\}F'(p)+\Big\{-2(1+4p^2)+\frac{3}{2}(1+p^2)l(1-p^2)\Big\}E'(p)\Big]$$ (M, D. 16, 28).

$$8)\int l(1-p^2 Sin^2 x)\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}}dx=\frac{1}{p^2}\Big[\Big\{4-2p^2-\frac{1}{2}(2-p^2)l(1-p^2)\Big\}F'(p)-$$
$$-\Big\{4-l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 323, N. 3, 6.

$$9)\int l(1-p^2 Sin^2 x)\frac{dx}{\sqrt{1-p^2 Sin^2 x}^3}=\frac{1}{1-p^2}\Big[(p^2-2)F'(p)+\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$
(VIII, 569).

$$10)\int l(1-p^2 Sin^2 x)\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{-1}{p^2.(1-p^2)}\Big[\Big\{(2-p^2)+\frac{1}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-$$
$$-\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 569).

$$11)\int l(1-p^2 Sin^2 x)\frac{Sin^2 x\,.\,Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^4}l(1-p^2).\Big\{\frac{1}{2}(2-p^2)F'(p)-E'(p)\Big\}.$$

$$12)\int l(1-p^2 Sin^2 x)\frac{Sin^2 x\,.\,Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{(16-16p^2+3p^4)-\frac{3}{2}(8-3p^2)(1-p^2)$$
$$l(1-p^2)\Big\}F'(p)+4(2-p^2)\{-2+3l(1-p^2)\}E'(p)\Big].$$

$$13)\int l(1-p^2 Sin^2 x)\frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^4(1-p^2)}\Big[-\{p^2(2-p^2)+(1-p^2)l(1-p^2)\}$$
$$F'(p)+\Big\{2p^2+\frac{1}{2}(2-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

$$14)\int l(1-p^2 Sin^2 x)\frac{Sin^4 x\,.\,Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{-(16-16p^2+3p^4)+\frac{3}{2}(8-5p^2)l(1-p^2)\Big\}$$
$$F'(p)+\Big\{8(2-p^2)-\frac{3}{2}(8-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

15) $$\int l(1-p^2 Sin^2 x)\frac{Sin^6 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6(1-p^2)}\Big[\Big\{(16-32p^2+p^4+6p^6)-\frac{3}{2}(8+p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{-2(8-12p^2-5p^4)+\frac{3}{2}(8-3p^2-2p^4)l(1-p^2)\Big\}E'(p)\Big].$$

Sur 11) à 15) voyez M, D. 16, 28.

16) $$\int l(1-p^2 Sin^2 x)\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^2}\Big[\Big\{2-p^2+\frac{1}{2}l(1-p^2)\Big\}F'(p)-\Big\{2+\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ (VIII, 569).

17) $$\int l(1-p^2 Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{p^4}\Big[\Big\{p^2(2-p^2)-(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{-2p^2+\frac{1}{2}(2-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

18) $$\int l(1-p^2 Sin^2 x)\frac{Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{9p^6}\Big[\Big\{-(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(8-4p^2-9p^4)-\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\Big\}E'(p)\Big].$$

Sur 17) et 18) voyez M, D. 16, 28.

19) $$\int l(1-p^2 Sin^2 x)\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}^3}dx=\frac{1}{2p^2(1-p^2)}[2\{(2-p^2)^2+(1-p^2)l(1-p^2)\}F'(p)-(2-p^2)\{4+l(1-p^2)\}E'(p)]$$ (VIII, 569).

F. Log. en num. $l(1-p^2 Sin^2 x)$; $[p^2<1]$. Circ. Dir. irrat. en dén. d'autre forme; TABLE 324. Lim. 0 et $\frac{\pi}{2}$.

1) $$\int l(1-p^2 Sin^2 x)\frac{dx}{\sqrt{1-p^2 Sin^2 x}^5}=\frac{1}{9(1-p^2)^2}\Big[-\Big\{2(10-10p^2+3p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+(2-p^2)\{10+3l(1-p^2)\}E'(p)\Big].$$

2) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^2(1-p^2)^2}\Big[-\Big\{(2+7p^2-8p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(1+4p^2)+\frac{3}{2}(1+p^2)l(1-p^2)\Big\}E'(p)\Big].$$

3) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^4(1-p^2)}\Big[\{-(16-16p^2+3p^4)+3(1-p^2)l(1-p^2)\}F'(p)+(2-p^2)\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big].$$

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4) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x . Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^6}\Big[\Big\{(16-16p^2+3p^4)+\frac{3}{2}(8-p^2)l(1-p^2)\Big\}F'(p)-4(2-p^2)\{2-3l(1-p^2)\}E'(p)\Big].$$

5) $$\int l(1-p^2 Sin^2 x)\frac{Sin^2 x . Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^8}\Big[\{p^2(16-16p^2+3p^4)+6(4+6p^2-p^6)l(1-p^2)\}F'(p)-4(2-p^2)\{2p^2-3(1+p^2)l(1-p^2)\}E'(p)\Big].$$

6) $$\int l(1-p^2 Sin^2 x)\frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^4(1-p^2)^2}\Big[\Big\{2(8-17p^2+6p^4)+\frac{3}{2}(2-3p^2)(1-p^2)l(1-p^2)\Big\}F'(p)-\{2(8-13p^2)+3(1-2p^2)l(1-p^2)\}E'(p)\Big].$$

7) $$\int l(1-p^2 Sin^2 x)\frac{Sin^4 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^6(1-p^2)}\Big[-\Big\{(16-16p^2+3p^4)+\frac{3}{2}(8-3p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{8(2-p^2)+\frac{3}{2}(8-7p^2)l(1-p^2)\Big\}E'(p)\Big].$$

8) $$\int l(1-p^2 Sin^2 x)\frac{Sin^4 x . Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{3p^8}l(1-p^2)\Big[-\frac{1}{2}(16+16p^2-3p^4)F'(p)-4(2-p^2)E'(p)\Big].$$

9) $$\int l(1-p^2 Sin^2 x)\frac{Sin^6 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^6(1-p^2)^2}\Big[\Big\{(16-16p^2-15p^4+9p^6)+\frac{3}{2}(8-9p^2)(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(8-4p^2-9p^4)+\frac{3}{2}(8-13p^2+3p^4)l(1-p^2)\Big\}E'(p)\Big].$$

10) $$\int l(1-p^2 Sin^2 x)\frac{Sin^6 x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^8(1-p^2)}\Big[\{-p^2(16-16p^2+3p^4)+12(2+p^2)(1-p^2)l(1-p^2)\}F'(p)+\Big\{8p^2(2-p^2)+\frac{3}{2}(16-16p^2+p^4)l(1-p^2)\Big\}E'(p)\Big].$$

11) $$\int l(1-p^2 Sin^2 x)\frac{Sin^8 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^8(1-p^2)^2}\Big[\Big\{2p^2(16-24p^2+2p^4+3p^6)-\frac{3}{2}(16-16p^2+p^4)(1-p^2)l(1-p^2)\Big\}F'(p)-\{2p^2(16-16p^2-5p^4)+3(8-12p^2+2p^4+p^6)l(1-p^2)\}E'(p)\Big].$$

12) $$\int l(1-p^2 Sin^2 x)\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^2(1-p^2)}\Big[\Big\{(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(1-5p^2)+\frac{3}{2}(1-2p^2)l(1-p^2)\Big\}E'(p)\Big].$$

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13) $$\int l(1-p^2 Sin^2 x)\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^4}\left[\left\{2(8+p^2-3p^4)+\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)-\{2(8+5p^2)+3(1+p^2)\,l(1-p^2)\}\,E'(p)\right].$$

14) $$\int l(1-p^2 Sin^2 x)\frac{Cos^6 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^6}\left[-\left\{(16-32p^2+p^4+6p^6)+\frac{3}{2}(8-3p^2-p^4)\right.\right.$$
$$\left.\left.l(1-p^2)\right\}F'(p)+\{2(8-12p^2-5p^4)-3(8-5p^2-p^4)\,l(1-p^2)\}E'(p)\right].$$

15) $$\int l(1-p^2 Sin^2 x)\frac{Cos^8 x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^8}\left[-\left\{2p^2(16-8p^2+2p^4+3p^6)+\frac{3}{2}(16-p^4)\right.\right.$$
$$\left.\left.(1+p^2)\,l(1-p^2)\right\}F'(p)+\{2p^2(16-14p^2-5p^4)-3(8+4p^2-9p^4-p^6)\,l(1-p^2)\}E'(p)\right].$$

Sur 1) à 15) voyez M, D. 16, 28.

16) $$\int l(1-p^2 Sin^2 x)\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}^5}dx=\frac{1}{9p^2(1-p^2)^2}\left[\left\{(4-6p^2+9p^4-6p^6)+\frac{3}{2}(2-p^2)\right.\right.$$
$$\left.\left.(1-p^2)\,l(1-p^2)\right\}F'(p)-\{2(2-2p^2+5p^4)+3(1-p^2+p^4)\}\,E'(p)\right]$$

V. T. 324, N. 2, 12.

17) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^{2a+1}}dx=\frac{1}{(2a-1)^2p^2}\left[\{2+(2a-1)\,l(1-p^2)\}\sqrt{1-p^2}^{\,1-2a}-2\right]$$

M, D. 16, 28.

18) $$\int l(1-p^2 Sin^2 x)\,.\,dx\sqrt{1-p^2 Sin^2 x}=(2-p^2)\,F'(p)-\left\{2-\frac{1}{2}\,l(1-p^2)\right\}E'(p)\ \text{(VIII, 424)}.$$

19) $$\int l(1-p^2 Sin^2 x)\,.\,Sin\,x.Cos\,x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\{2-3\,l(1-p^2)\}\sqrt{1-p^2}^3-2\right].$$

20) $$\int l(1-p^2 Sin^2 x)\,.\,Sin^2 x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\left\{-(2-11p^2+6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)+\left\{2(1-5p^2)-\frac{3}{2}(1-2p^2)\,l(1-p^2)\right\}E'(p)\right].$$

21) $$\int l(1-p^2 Sin^2 x)\,.\,Cos^2 x\,dx\sqrt{1-p^2 Sin^2 x}=\frac{1}{9p^2}\left[\left\{(2+7p^2-3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)+\{2(1+4p^2)+3(2-p^2)\,l(1-p^2)\}\,E'(p)\right].$$

22) $$\int l(1-p^2 Sin^2 x)\,.\,dx\sqrt{1-p^2 Sin^2 x}^3=\frac{1}{9}\left[\left\{2(10-10p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}\right.$$
$$\left.F'(p)-(2-p^2)\{10-3\,l(1-p^2)\}\,E'(p)\right].$$

Sur 19) à 22) voyez M, D. 16, 28.

1) $\int l \left\{\frac{1 + Cos\, x . \sqrt{Sin^2 \lambda - Sin^2 \mu . Sin^2 x}}{1 - Cos\, x . \sqrt{Sin^2 \lambda - Sin^2 \mu . Sin^2 x}}\right\} . dx = \pi\, l \left[\frac{1}{2} \left\{ Cos^2 \frac{1}{2} \lambda + \sqrt{Cos^4 \frac{1}{2} \lambda + Sin^2 \frac{1}{2} \mu . Cos^2 \frac{1}{2} \mu} \right\}\right]$ (IV, 454).

2) $\int l \left\{\frac{1 - Coshp\, \lambda . Coshp\, \mu . Cos\, x . \sqrt{1 - Cothp^2 \lambda . Tghp^2 \mu . Cos^2 x}}{1 + Coshp\, \lambda . Coshp\, \mu . Cos\, x . \sqrt{1 - Cothp^2 \lambda . Tghp^2 \mu . Cos^2 x}}\right\} . dx =$

$= \pi\, l \left\{\frac{4\, Sinhp\, \lambda}{(1 + Sinhp\, \lambda) \left\{Sinhp\, \lambda + \sqrt{1 - Coshp^2 \lambda . Coshp^2 \mu}\right\}}\right\}$ (IV, 454).

3) $\int l \{1 + \sqrt{1 - p^2 Sin^2 x}\} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{2} l p . F'(p) + \frac{\pi}{4} F' \{ \sqrt{1 - p^2} \}$

Sylvester, Quart. Journ. 4, 319.

4) $\int l (1 + p\, Sin^2 x) \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{2} l \left\{\frac{2 (1 + p)}{\sqrt{p}}\right\} . F'(p) - \frac{\pi}{8} F' \{ \sqrt{1 - p^2} \}$ (VIII, 353).

5) $\int l (1 - p\, Sin^2 x) \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{2} l \left\{\frac{2 (1 - p)}{\sqrt{p}}\right\} . F'(p) - \frac{\pi}{8} F' \{ \sqrt{1 - p^2} \}$ (VIII, 354).

6) $\int l \{ Cos^2 x + Sin^2 x . \sqrt{1 - p^2} \} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{2} l \left\{\frac{2 \sqrt[4]{1 - p^2}^{\,3}}{1 + \sqrt{1 - p^2}}\right\} . F'(p)$ (VIII, 551).

7) $\int l \{1 + Cot^2 \lambda . Sin^2 x\} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \pi F \{ \sqrt{1 - p^2}, \lambda \} - 2 F'(p) . \Upsilon \{ \sqrt{1 - p^2}, \lambda \} -$

$- 2 F'(p) . l\, Sin\, \lambda - \frac{1}{2} \pi F' \{ \sqrt{1 - p^2} \} - F'(p) . l p - \{E'(p) - F'(p)\} [F \{ \sqrt{1 - p^2}, \lambda \}]^2$

(VIII, 352).

8) $\int l \left\{1 - \{1 - (1 - p^2) Sin^2 \lambda\} Sin^2 x\right\} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \pi F \{ \sqrt{1 - p^2}, \lambda \} - 2 F'(p) . \Upsilon \{ \sqrt{1 - p^2}, \lambda \} +$

$+ \frac{1}{2} F'(p) . l \frac{1 - p^2}{p^2} - \frac{1}{2} \pi F' \{ \sqrt{1 - p^2} \} - \{E'(p) - F'(p)\} [F \{ \sqrt{1 - p^2}, \lambda \}]^2$

(VIII, 353).

9) $\int l \{1 - p^2 Sin^2 \lambda . Sin^2 x\} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = E'(p) . \{F(p, \lambda)\}^2 - 2 F'(p) . \Upsilon (p, \lambda)$ (VIII, 351).

10) $\int l \{1 - p^2 Sin^4 x\} \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \frac{1}{2} l \left\{\frac{4 (1 - p^2)}{p^2}\right\} . F'(p) - \frac{1}{4} \pi F' \{ \sqrt{1 - p^2} \}$ (VIII, 354).

11) $\int l \left(\frac{1 + q \sqrt{1 - p^2 Sin^2 x}}{1 - q \sqrt{1 - p^2 Sin^2 x}}\right) \frac{dx}{\sqrt{1 - p^2 Sin^2 x}} = \pi F \{ \sqrt{1 - p^2}, Arcsin\, q \}$ (VIII, 344).

12) $\int l \left(\frac{Cos \frac{1}{2} x + \sqrt{Cos\, x}}{Cos \frac{1}{2} x - \sqrt{Cos\, x}}\right) . dx = \pi\, l \frac{\sqrt{2} + 1}{\sqrt{2} - 1}$ Enneper, Schl. Z. 7, 346.

1) $\int \frac{(Sin^q x - Cosec^q x)^2}{l\,Sin\,x} Tg\,x\,dx = l\frac{Sin\,q\pi}{q\pi}$ V. T. 130, N. 13.

2) $\int \frac{1+Sin\,x}{l\,Sin\,x} Sin(l\,Sin\,x).Sin\,2x\,dx = \frac{1}{2}\pi$ V. T. 405, N. 3.

3) $\int \frac{Sin^q x - Sin^p x}{l\,Sin\,x} Sin\,2x\,dx = 2\,l\frac{q+2}{p+2}$ V. T. 123, N. 3.

4) $\int \frac{(Sin^p x - Sin^q x)(Sin^r x - Sin^s x)}{l\,Sin\,x} Sin\,2x\,dx = 2\,l\frac{(p+r+2)(q+s+2)}{(p+s+2)(q+r+2)}$ V. T. 123, N. 7.

5) $\int \frac{(1-Sin^{1-q} x)^2}{l\,Sin\,x}\,\frac{Sin^q x}{Sin\,2x} dx = \frac{1}{2}\,l\,Sin\frac{1}{2}q\pi$ V. T. 128, N. 9.

6) $\int \frac{Cos(2p\,l\,Sin\,x)}{l\,Sin\,x}\,\frac{dx}{Cos\,x} = \frac{1}{2}\,l\frac{1}{e^{p\pi}+e^{-p\pi}}$ V. T. 405, N. 14.

7) $\int \frac{1-Sin^q x}{l\,Sin\,x}\,\frac{1-Sin^{q+1} x}{Cos\,x} dx = -q\,l\,2\ [q > -1]$ V. T. 128, N. 12.

8) $\int \frac{(Sin^q x - Cosec^q x)^2}{l\,Sin\,x}\,\frac{dx}{Cos\,x} = l\,Cos\,q\pi$ V. T. 130, N. 12.

9) $\int \frac{Cos(2p\,l\,Sin\,x)}{l\,Sin\,x}\,\frac{Sin\,x + Cosec\,x}{Cos\,x} dx = -l(e^{p\pi}-e^{-p\pi})$ V. T. 405, N. 16.

10) $\int \frac{Cos^3 x}{l\,Sin\,x}\,\frac{dx}{1+Sin^4 x} = l\,Cot\frac{3\pi}{8}$ V. T. 128, N. 3.

11) $\int \frac{Sin^q x - Cosec^q x}{Sin^p x + Cosec^p x}\,\frac{dx}{Tg\,x.\,l\,Sin\,x} = l\,Tg\left(\frac{p+q}{4p}\pi\right)$ V. T. 128, N. 5.

12) $\int \frac{Cosec^q x - Sin^q x}{(l\,Sin\,x)^p}\,\frac{dx}{Cos\,x} = (-1)^p\,\Gamma(1-p).\sum_1^\infty \left\{\frac{1}{(2n-1-q)^{1-p}} - \frac{1}{(2n-1+q)^{1-p}}\right\}$

V. T. 131, N. 2.

13) $\int \frac{Cos^q x - Cos^p x}{l\,Cos\,x} Sin\,2x\,dx = 2\,l\frac{q+2}{p+2}$ V. T. 123, N. 3.

14) $\int \frac{(Cos^p x - Cos^q x)(Cos^r x - Cos^s x)}{l\,Cos\,x} Sin\,2x\,dx = 2\,l\frac{(p+r+2)(q+s+2)}{(p+s+2)(q+r+2)}$ V. T. 123, N. 7.

15) $\int \frac{1+Cos\,x}{l\,Cos\,x} Sin(l\,Cos\,x).Sin\,2x\,dx = \frac{1}{2}\pi$ V. T. 405, N. 3.

16) $\int \frac{(Cos^q x - Sec^q x)^2}{l\,Cos\,x}\,\frac{dx}{Sin\,x} = l\,Cos\,q\pi$ V. T. 130, N. 12.

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17) $\int \frac{1-Cos^q x}{l\, Cos\, x} \frac{1-Cos^{q+1} x}{Sin\, x} dx = -q\, l 2\ [q > -1]$ V. T. 128, N. 12.

18) $\int \frac{Cos(2p\, l\, Cos\, x)}{l\, Cos\, x} \frac{dx}{Sin\, x} = -\frac{1}{2} l(e^{p\pi} + e^{-p\pi})$ V. T. 405, N. 14.

19) $\int \frac{(1-Cos^{1-q} x)^2}{l\, Cos\, x} \frac{Cos^q x}{Sin\, 2x} dx = \frac{1}{2} l\, Sin \frac{1}{2} q\pi$ V. T. 128, N. 9.

20) $\int \frac{Cos(2p\, l\, Cos\, x)}{l\, Cos\, x} \frac{Cos\, x + Sec\, x}{Sin\, x} dx = -l(e^{p\pi} - e^{-p\pi})$ V. T. 405, N. 16.

21) $\int \frac{(Cos^q x - Sec^q x)^2}{l\, Cos\, x} \frac{dx}{Tg\, x} = l \frac{Sin\, q\pi}{q\pi}$ V. T. 130, N. 13.

22) $\int \frac{Cos^q x - Sec^q x}{Cos^p x + Sec^p x} \frac{Tg\, x}{l\, Cos\, x} dx = l\, Tg\left(\frac{p+q}{4p}\pi\right)$ V. T. 128, N. 5.

23) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\, Tg\, x} dx = l\left(Tg \frac{1}{4} p\pi . Cot \frac{1}{4} q\pi\right)$ V. T. 143, N. 2.

24) $\int \frac{Tg^p x - Tg^q x}{Sin\, x + Cos\, x} \frac{dx}{Sin\, x . l\, Tg\, x} = l\left(Tg \frac{1}{2} p\pi . Cot \frac{1}{2} q\pi\right)$ V. T. 143, N. 2.

25) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\, Tg\, x} \frac{dx}{Cos\, 2x} = l\left(Sin \frac{1}{2} p\pi . Cosec \frac{1}{2} q\pi\right)$ V. T. 143, N. 4.

26) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{l\, Tg\, x} \frac{dx}{Tg^{p+q} x} = l\left(Tg \frac{1}{4} p\pi . Cot \frac{1}{4} q\pi\right)$ V. T. 143, N. 2.

27) $\int \frac{Tg^{p-1} x - Tg^{q-1} x}{Tg^{p+q} x . l\, Tg\, x} \frac{dx}{Cos\, 2x} = l\left(Sin \frac{1}{2} q\pi . Cosec \frac{1}{2} p\pi\right)$ V. T. 143, N. 4.

28) $\int \frac{Tg^p x - Tg^q x}{Sin\, x + Cos\, x} \frac{dx}{Tg^{p+q+1} x . Cos\, x . l\, Tg\, x} = l\left(Tg \frac{1}{2} p\pi . Cot \frac{1}{2} q\pi\right)$ V. T. 143, N. 2.

F. Log. en dén. $q^2 + (l\, Sin\, x)^2$; Circ. Dir. TABLE 327. Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{Sin^p x - Cosec^p x}{\pi^2 + (l\, Sin\, x)^2} \frac{dx}{Cos\, x} = \frac{1}{2\pi} \left\{p\pi\, Cos\, p\pi - Sin\, p\pi . l\{2(1 + Cos\, p\pi)\}\right\} [p \leqq 1]$ V. T. 131, N. 4.

2) $\int \frac{Sin^{p-1} x - Sin^{1-p} x}{q^2 + (l\, Sin\, x)^2} \frac{dx}{Cos\, x} = \frac{\pi}{q} \sum_1^\infty \frac{Sin\, n p\pi}{q + n\pi} [p^2 < 1]$ V. T. 131, N. 12.

3) $\int \frac{Sin^p x - Cosec^p x}{\pi^2 + (l\, Sin^2 x)^2} \frac{dx}{Cos\, x} = -\frac{1}{4} Sin \frac{1}{2} p\pi + \frac{1}{4\pi} Cos \frac{1}{2} p\pi . l \frac{1 + Sin \frac{1}{2} p\pi}{1 - Sin \frac{1}{2} p\pi} [p^2 \leqq 1]$ V. T. 131, N. 6.

4) $\int \frac{l\,Sin\,x}{\pi^2+(l\,Sin\,x)^2}\,\frac{dx}{Cos\,x}=\frac{1}{2}\left(\frac{1}{2}-l2\right)$ V. T. 129, N. 10.

5) $\int \frac{l\,Sin\,x}{\pi^2+(l\,Sin^2 x)^2}\,\frac{dx}{Cos\,x}=\frac{1}{16}(2-\pi)$ V. T. 129, N. 11.

6) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{q^2+(l\,Sin\,x)^2}\,dx=\frac{1}{2}\left\{l\frac{\pi}{q}+\frac{\pi}{2q}+Z'\left(\frac{q}{\pi}\right)\right\}$ V. T. 129, N. 14.

7) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\pi^2+(l\,Sin\,x)^2}\,dx=\frac{1}{4}-\frac{1}{2}\mathrm{A}$ V. T. 129, N. 13.

8) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{q^2-(l\,Sin\,x)^2}\,dx=\frac{\pi^2}{4q^2}\sum_1^\infty(-1)^{n+1}\frac{1}{n+1}\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 15.

9) $\int \frac{Sin^p x+Cosec^p x}{\pi^2+(l\,Sin\,x)^2}\,\frac{l\,Sin\,x}{Cos\,x}\,dx=\frac{1}{2}\left\{1-p\pi\,Sin\,p\pi-Cos\,p\pi\,.\,l\left\{2(1+Cos\,p\pi)\right\}\right\}\ [p^2\leqq 1]$

V. T. 131, N. 3.

10) $\int \frac{Sin^{p-1} x+Sin^{1-p} x}{q^2+(l\,Sin\,x)^2}\,\frac{l\,Sin\,x}{Cos\,x}\,dx=-\frac{\pi}{2q}-\pi\sum_1^\infty\frac{Cos\,np\pi}{q+n\pi}\ [p^2<1]$ V. T. 131, N. 11.

11) $\int \frac{Sin^p x+Cosec^p x}{\pi^2+(l\,Sin^2 x)^2}\,\frac{l\,Sin\,x}{Cos\,x}\,dx=\frac{1}{4}-\frac{1}{8}\pi\,Cos\,\frac{1}{2}p\pi+\frac{1}{8}\,Sin\,\frac{1}{2}p\pi\,.\,l\frac{1-Sin\,\frac{1}{2}p\pi}{1+Sin\,\frac{1}{2}p\pi}\ [p^2<1]$

V. T. 131, N. 5.

12) $\int \frac{l\,Cos\,x}{q^2+(l\,Sin\,x)^2}\,\frac{dx}{Tg\,x}=\frac{\pi}{2q}\,l\Gamma\left(\frac{q+\pi}{\pi}\right)+\frac{\pi}{4q}\,l2q+\frac{1}{2}\left(l\frac{q}{\pi}-1\right)$ V. T. 126, N. 11.

13) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\{q^2+(l\,Sin\,x)^2\}^2}\,dx=-\frac{\pi^2}{4q^4}\sum_0^\infty\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 16.

14) $\int \frac{Tg\,x\,.\,l\,Sin\,x}{\{q^2-(l\,Sin\,x)^2\}^2}\,dx=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n+1}\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 17.

15) $\int \frac{\pi^2-(l\,Sin\,x)^2}{\{\pi^2+(l\,Sin\,x)^2\}^2}\,\frac{l\,Cos\,x}{Tg\,x}\,dx=\frac{1}{4}(1-2\mathrm{A})$ V. T. 327, N. 7.

16) $\int \frac{q^2-3(l\,Sin\,x)^2}{\{q^2+(l\,Sin\,x)^2\}^3}\,\frac{l\,Cos\,x}{Tg\,x}\,dx=-\frac{\pi^2}{4q^4}\sum_0^\infty\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 13.

17) $\int \frac{q^2+(l\,Sin\,x)^2}{\{q^2-(l\,Sin\,x)^2\}^2}\,\frac{l\,Cos\,x}{Tg\,x}\,dx=\frac{\pi^2}{4q^2}\sum_0^\infty\frac{(-1)^{n+1}}{n+1}\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 8.

18) $\int \frac{q^2+3(l\,Sin\,x)^2}{\{q^2-(l\,Sin\,x)^2\}^3}\,\frac{l\,Cos\,x}{Tg\,x}\,dx=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n+1}\mathrm{B}_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 327, N. 14.

1) $\int \frac{Cos^p x - Sec^p x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{1}{2\pi} \left\{ p\pi\, Cos\, p\pi - Sin\, p\pi\,.\, l\{2(1 + Cos\, p\pi)\} \right\}$ $[p < 1]$ V. T. 131, N. 4.

2) $\int \frac{Cos^p x - Sec^p x}{\pi^2 + (l\, Cos^2 x)^2} \frac{dx}{Sin\, x} = -\frac{1}{4} Sin \frac{1}{2} p\pi + \frac{1}{4\pi} Cos \frac{1}{2} p\pi\,.\, l \frac{1 + Sin \frac{1}{2} p\pi}{1 - Sin \frac{1}{2} p\pi}$ $[p^2 \leqq 1]$ V. T. 131, N. 6.

3) $\int \frac{Cos^{p-1} x - Cos^{1-p} x}{q^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{\pi}{q} \sum_1^\infty \frac{Sin\, np\pi}{q + n\pi}$ $[p^2 < 1]$ V. T. 131, N. 12.

4) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Sin\, x} = \frac{1}{2}\left(\frac{1}{2} - l2\right)$ V. T. 129, N. 10.

5) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos^2 x)^2} \frac{dx}{Sin\, x} = \frac{1}{16}(2 - \pi)$ V. T. 129, N. 11.

6) $\int \frac{l\, Cos\, x}{\pi^2 + (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{1}{4}(1 - 2\,\mathrm{A})$ V. T. 129, N. 13.

7) $\int \frac{l\, Cos\, x}{q^2 + (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{1}{2}\left\{ l\frac{\pi}{q} + \frac{\pi}{2q} + \mathrm{Z}'\left(\frac{q}{\pi}\right) \right\}$ V. T. 129, N. 14.

8) $\int \frac{l\, Cos\, x}{q^2 - (l\, Cos\, x)^2} \frac{dx}{Tg\, x} = \frac{\pi^2}{4q^2} \sum_0^\infty \frac{(-1)^{n+1}}{n+1} \mathrm{B}_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 15.

9) $\int \frac{Cos^p x + Sec^p x}{\pi^2 + (l\, Cos\, x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = \frac{1}{2} \left\{ 1 - p\pi\, Sin\, p\pi - Cos\, p\pi\,.\, l\{2(1 + Cos\, p\pi)\} \right\}$ $[p^2 \leqq 1]$ V. T. 131, N. 3.

10) $\int \frac{Cos^p x + Sec^p x}{\pi^2 + (l\, Cos^2 x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = \frac{1}{4} - \frac{\pi}{8} Cos \frac{1}{2} p\pi + \frac{1}{8} Sin \frac{1}{2} p\pi\,.\, l \frac{1 - Sin \frac{1}{2} p\pi}{1 + Sin \frac{1}{2} p\pi}$ $[p^2 < 1]$ V. T. 131, N. 5.

11) $\int \frac{Cos^{p-1} x + Cos^{1-p} x}{q^2 + (l\, Cos\, x)^2} \frac{l\, Cos\, x}{Sin\, x} dx = -\frac{\pi}{2q} - \pi \sum_1^\infty \frac{Cos\, np\pi}{q + n\pi}$ $[p^2 < 1]$ V. T. 131, N. 11.

12) $\int \frac{l\, Sin\, x\,.\, Tg\, x}{q^2 + (l\, Cos\, x)^2} dx = \frac{\pi}{2q} l\Gamma\left(\frac{q + \pi}{\pi}\right) + \frac{\pi}{4q} l\, 2q + \frac{1}{2}\left(l\frac{q}{\pi} - 1\right)$ V. T. 126, N. 11.

13) $\int \frac{l\, Cos\, x}{\{q^2 + (l\, Cos\, x)^2\}^2} \frac{dx}{Tg\, x} = -\frac{\pi^2}{4q^4} \sum_0^\infty \mathrm{B}_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 16.

14) $\int \frac{\pi^2 - (l\, Cos\, x)^2}{\{\pi^2 + (l\, Cos\, x)^2\}^2} Tg\, x\,.\, l\, Sin\, x\,.\, dx = \frac{1}{4}(1 - 2\,\mathrm{A})$ V. T. 328, N. 6.

15) $\int \frac{q^2 + (l\, Cos\, x)^2}{\{q^2 - (l\, Cos\, x)^2\}^2} Tg\, x\,.\, l\, Sin\, x\,.\, dx = \frac{\pi^2}{4q^2} \sum_0^\infty \frac{(-1)^{n+1}}{n+1} \mathrm{B}_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 328, N. 8.

16) $\int \frac{q^3 - 3(l\, Cos\, x)^2}{\{q^2 + (l\, Cos\, x)^2\}^3} Tg\, x\,.\, l\, Sin\, x\,.\, dx = -\frac{\pi^2}{4q^4} \sum_0^\infty \mathrm{B}_{2n+1} \left(\frac{\pi}{q}\right)^{2n}$ V. T. 328, N. 13.

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F. Log. en dén. d'autre forme bin.; Circ. Dir. — TABLE 328, suite. — Lim. 0 et $\frac{\pi}{2}$.

17) $\int \frac{l\,Cos\,x}{\{q^2-(l\,Cos\,x)^2\}^2}\frac{dx}{Tg\,x}=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n+1}B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 129, N. 17.

18) $\int \frac{q^3+3(l\,Cos\,x)^2}{\{q^2-(l\,Cos\,x)^2\}^3}Tg\,x\,.\,l\,Sin\,x\,.\,dx=\frac{\pi^2}{4q^4}\sum_0^\infty(-1)^{n+1}B_{2n+1}\left(\frac{\pi}{q}\right)^{2n}$ V. T. 328, N. 17.

F. Log. sous forme irrat.; Circ. Dir. — TABLE 329. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int \sqrt{l\,Cosec\,x}\,.\,Cos\,x\,dx=\frac{1}{2}\sqrt{\pi}$ V. T. 32, N. 1.

2) $\int (l\,Cosec\,x)^{a-\frac{1}{2}}\frac{Sin^p\,x}{Tg\,x}dx=\frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 107, N. 2.

3) $\int Cos\,x\frac{dx}{\sqrt{l\,Cosec\,x}}=\sqrt{\pi}$ V. T. 32, N. 3.

4) $\int \frac{Sin^p\,x}{Tg\,x}\frac{dx}{\sqrt{l\,Cosec\,x}}=\sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

5) $\int \sqrt{l\,Sec\,x}\,.\,Sin\,x\,dx=\frac{1}{2}\sqrt{\pi}$ V. T. 32, N. 1.

6) $\int (l\,Sec\,x)^{a-\frac{1}{2}}.\,Cos^p x\,.\,Tg\,x\,dx=\frac{1^{a/2}}{(2p)^a}\sqrt{\frac{\pi}{p}}$ V. T. 107, N. 2.

7) $\int Sin\,x\frac{dx}{\sqrt{l\,Sec\,x}}=\sqrt{\pi}$ V. T. 32, N. 3.

8) $\int Cos^{p-2}x\,.\,Sin\,2x\frac{dx}{\sqrt{l\,Sec\,x}}=2\sqrt{\frac{\pi}{p}}$ V. T. 133, N. 1.

F. Log. de Circ. Dir.; Circ. Dir. rat. ent. — TABLE 330. — Lim. 0 et π.

1) $\int l(1\pm p\,Cos\,x)^2.\,dx=2\pi\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2\leqq 1],=-2\pi\,l2p\,[p^2\geqq 1]$ (VIII, 356, 357).

2) $\int l(p\pm Cos\,x)^2.\,dx=-2\pi\,l2\,[p^2\leqq 1],=-4\pi\,l\{\sqrt{p+1}-\sqrt{p-1}\}\,[p^2\geqq 1]$ (VIII, 356).

3) $\int l(1-p^2Cos^2x)^2.\,dx=4\pi\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2\leqq 1],=-4\pi\,l2p\,[p^2\geqq 1]$ (VIII, 356, 357).

4) $\int l(p^2-Cos^2x)^2.\,dx=-4\pi\,l2\,[p^2\leqq 1],=-8\pi\,l\{\sqrt{p+1}-\sqrt{p-1}\}\,[p^2\geqq 1]$ (VIII, 356).

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5) $\int l(1-2p\,Cos\,x+p^2).dx = 0\,[p^2 \leqq 1], = 2\pi\,lp\,[p^2 \geqq 1]$ (VIII, 259).

6) $\int l\,Sin\,x\,.\,Sin\,2\,a\,x\,dx = 0$ (IV, 400*).

7) $\int l\,Sin\,x\,Cos\,2\,a\,x\,dx = \frac{-1}{2\,a}$ (IV, 400*).

8) $\int l\,Sin\,x.Cos\{2\,b\,(x-a)\}\,dx = -\frac{1}{2\,b}\,e^{-2abi}$ (IV, 400*).

9) $\int l\,Sin\,x\,.\,Sin^{2a}2\,x\,.\,Cos\,2\,x\,dx = \frac{-\pi}{4a+2}\,\frac{1^{a/2}}{2^{a/2}}$ (IV, 462).

10) $\int l(1-2p\,Cos\,x+p^2).Sin\,a\,x\,.\,Sin\,x\,dx = \frac{\pi}{2}\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

11) $\int l(1-2p\,Cos\,x+p^2).Cos\,a\,x\,dx = -\frac{\pi}{a}\,p^a$ (VIII, 276).

12) $\int l(1-2p\,Cos\,x+p^2).Cos\,a\,x\,.\,Cos\,x\,dx = -\frac{\pi}{2}\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

13) $\int l(1-2p\,Cos\,2\,x+p^2).Sin\,2\,a\,x\,.\,Sin\,x\,dx = 0$ V. T. 330, N. 15.

14) $\int l(1-2p\,Cos\,2\,x+p^2).Sin\{(2\,a-1)\,x\}\,.\,Sin\,x\,dx = \frac{\pi}{2}\left(\frac{p^a}{a}-\frac{p^{a-1}}{a-1}\right)$ V. T. 332, N. 5.

15) $\int l(1-2p\,Cos\,2\,x+p^2).Cos\,\{(2\,a-1)\,x\}\,dx = 0$ (IV, 462).

16) $\int l(1-2p\,Cos\,2\,x+p^2).Cos\,2\,a\,x\,.\,Cos\,x\,dx = 0$ V. T. 330, N. 15.

17) $\int l(1-2p\,Cos\,2\,x+p^2).Cos\{(2\,a-1)\,x\}.Cos\,x\,dx = -\frac{\pi}{2}\left(\frac{p^a}{a}+\frac{p^{a-1}}{a-1}\right)$ V. T. 332, N. 5.

18) $\int l\left\{\frac{1+2p\,Cos\,x+p^2}{1-2p\,Cos\,x+p^2}\right\}.Sin\,\{(2\,a+1)\,x\}\,dx = 2\,\pi\,p^{2a+1}\,\frac{(-1)^a}{2\,a+1}$ (VIII, 277).

F. Log. de Circ. Dir.; Circ. Dir. rat. fract. | TABLE 331. | Lim. 0 et π.

1) $\int l(1 \pm p\,Cos\,x)\,\frac{dx}{Cos\,x} = \pm\,\pi\,Arcsin\,p\,[p^2 < 1]$ (VIII, 357).

2) $\int l\left\{\frac{1+Sin\,x}{1+Cos\,\lambda\,.\,Sin\,x}\right\}\frac{dx}{Sin\,x} = \lambda^2$ V. T. 134, N. 15.

3) $\int l(1-2p\,Cos\,x+p^2)\,\frac{dx}{Cos\,x}=\infty\,[p^2\leqq 1]$ (VIII, 563).

4) $\int l(1-2p\,Cos\,2x+p^2)\,\frac{dx}{Sin\,x}=0$ V. T. 321, N. 17.

5) $\int l\left\{\frac{1+2p\,Cos\,2x+p^2}{1+2p\,Cos\,ax+p^2}\right\}\frac{dx}{Tg\,x}=0$ (IV, 463).

6) $\int l\,Sin\,x\,\frac{dx}{p+q\,Cos\,x}=\frac{\pi}{\sqrt{p^2-q^2}}\,l\,\frac{\sqrt{p^2-q^2}}{p+\sqrt{p^2-q^2}}\,[0<p>q]$ (VIII, 274).

7) $\int l(r+p\,Cos\,x)\,\frac{Cos\,x}{1-q\,Cos^2x}\,dx=\frac{\pi}{\sqrt{q(1-q)}}\,l\frac{p\sqrt{q}-\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}{p\sqrt{q}+\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}$
V. T. 145, N. 22.

8) $\int l\,Sin\,x\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\,\frac{1-p^2}{2}\,[p^2<1],=\frac{\pi}{p^2-1}\,l\frac{p^2-1}{2p^2}\,[p^2>1]$
V. T. 321, N. 1, 8.

9) $\int l\,Sin\,x\,\frac{Cos\,x}{1-2p\,Cos\,x+p^2}\,dx=\frac{\pi}{2p}\,\frac{1+p^2}{1-p^2}\,l(1-p^2)-\frac{p\pi}{1-p^2}\,l2\,[p^2<1],=$

$=\frac{\pi}{2p}\,\frac{p^2+1}{p^2-1}\,l\frac{p^2-1}{p^2}-\frac{p\pi}{p^2-1}\,l2\,[p^2>1]$ V. T. 321, N. 2, 9.

10) $\int l\,Sin\,r\,x\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p^{2r}}{2}$

11) $\int l\,Cos\,r\,x\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1+p^{2r}}{2}$

12) $\int l\,Tg\,r\,x\,\frac{dx}{1-2p\,Cos\,x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p^{2r}}{1+p^{2r}}$

Dans 10) à 12) on a $p^2<1$. Voyez Svanberg, N. Act. Ups. 10, 231.

13) $\int l\,Sin\,x\,\frac{dx}{1-2p\,Cos\,2x+p^2}=\frac{\pi}{1-p^2}\,l\frac{1-p}{2}\,[p<1],=\frac{\pi}{p^2-1}\,l\frac{p-1}{2p}\,[p>1]$
V. T. 321, N. 1.

14) $\int l\,Sin\,x\,\frac{Cos\,x}{1-2p\,Cos\,2x+p^2}\,dx=0\,[p>0]$ V. T. 346, N. 6.

15) $\int l\,Sin\,x\,\frac{Cos\,2x}{1-2p\,Cos\,2x+p^2}\,dx=\frac{\pi}{2p(1-p^2)}\left\{(1+p^2)\,l(1-p)-2p^2\,l2\right\}[p<1],=$

$=\frac{\pi}{2p(p^2-1)}\left\{(1+p^2)\,l\frac{p-1}{p}-2\,l2\right\}[p>1]$ V. T. 321, N. 1, 2.

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16) $\int l\,Sin\,x \frac{Cos^2 x}{1-2p\,Cos\,2x+p^2}dx = \frac{\pi}{4p}\frac{1+p}{1-p}l(1-p) - \frac{\pi}{2(1-p)}l2\ [p<1], =$

$= \frac{\pi}{4p}\frac{p+1}{p-1}l\frac{p-1}{p} - \frac{\pi}{2(p-1)}l2\ [p>1]$ V. T. 321, N. 2.

17) $\int l\,Sin\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}dx = \frac{\pi}{2p}l(1-p)\ [p<1], = \frac{\pi}{2p}l\frac{4p}{p-1}\ [p>1]$ V. T. 346, N. 9.

18) $\int l\,Sin\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}l\frac{1-p^r}{2}\ [p<1]$ V. T. 331, N. 10.

19) $\int l\,Sin\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}dx = 0\ [p<1]$ V. T. 331, N. 10.

20) $\int l\,Cos\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}dx = \frac{\pi}{2p}l(1+p)\ [p<1]$ V. T. 331, N. 17, 20.

21) $\int l\,Cos\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}l\frac{1+p^r}{2}\ [p<1]$ V. T. 331, N. 11.

22) $\int l\,Cos\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}dx = 0\ [p<1]$ V. T. 331, N. 11.

23) $\int l\,Tg\,x \frac{Cos\,2x-p}{1-2p\,Cos\,2x+p^2}dx = \frac{\pi}{2p}l\frac{1-p}{1+p}\ [p<1]$ V. T. 346, N. 1.

24) $\int l\,Tg\,r\,x \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{1-p^2}l\frac{1-p^r}{1+p^r}\ [p<1]$ V. T. 331, N. 12.

25) $\int l\,Tg\,r\,x \frac{Cos\,x}{1-2p\,Cos\,2x+p^2}dx = 0\ [p<1]$ V. T. 331, N. 12.

26) $\int l(1-2p\,Cos\,x+p^2)\frac{dx}{1-2q\,Cos\,x+q^2} = \frac{2\pi}{1-q^2}l(1-pq)\ [p^2 \leqq 1, q^2<1]$ (VIII, 560).

F. Logarithmique; Circul. Directe. — TABLE 332. — Lim. 0 et 2π.

1) $\int l(1-2p\,Cos\,x+p^2).dx = 0\ [p^2<1]$ V. T. 330, N. 5.

2) $\int l(1+p\,Sin\,x+q\,Cos\,x).dx = 2\pi\,l\frac{1+\sqrt{1-p^2-q^2}}{2}\ [p^2+q^2<1]$ (VIII, 429).

3) $\int l(1+p^2+q^2+2p\,Sin\,x+2q\,Cos\,x).dx = 0\ [p^2+q^2 \leqq 1], = 2\pi\,l(p^2+q^2)\ [p^2+q^2 \geqq 1]$ (VIII, 429).

4) $\int l(1-2p\,Cos\,x+p^2).Sin\,a\,x.Sin\,x\,dx=\pi\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)[p^2<1]$ V. T. 332, N. 5.

5) $\int l(1-2p\,Cos\,x+p^2).Cos\,a\,x\,dx=-\frac{2\pi}{a}p^a\,[p^2<1]$ V. T. 330, N. 11.

6) $\int l(1-2p\,Cos\,x+p^2).Cos\,a\,x.Cos\,x\,dx=-\pi\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)[p^2<1]$ V. T. 332, N. 5.

7) $\int l(1-2p\,Cos\,b\,x+p^2).Cos\,a\,x\,dx=0\left[\frac{b}{a}\text{ fractionn.}\right]$ (IV, 465).

8) $\int l\left\{\frac{1+Cos\,x}{1+Cos\,b\,x}\right\}.Cos\,a\,x\,dx=2\pi\left(\frac{(-1)^{a-1}}{a}+(-1)^{\frac{a}{b}}\frac{b}{a}\right)$ (IV, 465).

9) $\int l\left\{\frac{1-2p\,Cos\,x+p^2}{1-2p\,Cos\,bx+p^2}\right\}.Cos\,a\,x\,dx=2\pi\left(\frac{b}{a}p^{\frac{a}{b}}-\frac{1}{a}p^a\right)[p^2\leqq 1],=2\pi\left(\frac{b}{a}p^{-\frac{a}{b}}-\frac{1}{ap^a}\right)[p^2\geqq 1]$ (IV, 465).

10) $\int l\,Sin\,x\,\frac{Cos\,x-p}{1-2p\,Cos\,x+p^2}\,dx=\frac{\pi}{p}l(1-p^2)\,[p^2<1],=\frac{\pi}{p}l\frac{4p^2}{p^2-1}\,[p^2>1]$ V. T. 346, N. 3.

F. Logarithmique; Circul. Directe. TABLE 333. Lim. 0 et $p\pi$.

1) $\int_0^{2a\pi} l((\pm Sin\,x)).dx=-2a\pi\,l2+(4a+1)\varkappa\pi^2 i$ (VIII, 281).

2) $\int_0^{(2a+1)\pi} l((+Sin\,x)).dx=-(2a+1)\pi\,l2+\{(2a+1)2\varkappa+a\}\pi^2 i$ (VIII, 281).

3) $\int_0^{(2a+1)\pi} l((-Sin\,x)).dx=-(2a+1)\pi\,l2+\{(2a+1)2\varkappa+a+1\}\pi^2 i$ (VIII, 281).

4) $\int_0^{(2a+\frac{1}{2})\pi} l((+Sin\,x)).dx=-\left(2a+\frac{1}{2}\right)\pi\,l2-(4a+1)\varkappa\pi^2 i$ (VIII, 284).

5) $\int_0^{(2a+\frac{1}{2})\pi} l((-Sin\,x)).dx=-\left(2a+\frac{1}{2}\right)\pi\,l2-\left\{(4a+1)\varkappa-\frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

6) $\int_0^{(2a-\frac{1}{2})\pi} l((+Sin\,x)).dx=-\left(2a-\frac{1}{2}\right)\pi\,l2-\left\{(4a-1)\varkappa-\frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

7) $\int_0^{(2a-\frac{1}{2})\pi} l((-Sin\,x)).dx=-\left(2a-\frac{1}{2}\right)\pi\,l2-(4a-1)\varkappa\pi^2 i$ (VIII, 284).

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8) $\int_0^{2a\pi} l((\pm Cos\, x)) . dx = -2a\pi\, l2 - 4a\alpha\pi^2 i$ (VIII, 283).

9) $\int_0^{(2a+1)\pi} l((+Cos\, x)) . dx = -(2a+1)\pi\, l2 - \frac{1}{2}\{(2a+1)(4\alpha-1)+2a\}\pi^2 i$ (VIII, 283).

10) $\int_0^{(2a+1)\pi} l((-Cos\, x)) . dx = -(2a+1)\pi\, l2 - \frac{1}{2}\{(2a+1)(4\alpha-1)+2a+2\}\pi^2 i$ (VIII, 283).

11) $\int_0^{(2a\pm\frac{1}{2})\pi} l((+Cos\, x)) . dx = -\left(2a\pm\frac{1}{2}\right)\pi\, l2 + \{(4a\pm 1)\alpha + a\}\pi^2 i$ (VIII, 284).

12) $\int_0^{(2a\pm\frac{1}{2})\pi} l((-Cos\, x)) . dx = -\left(2a\pm\frac{1}{2}\right)\pi\, l2 + \left\{(4a\pm 1)\alpha + a \pm \frac{1}{2}\right\}\pi^2 i$ (VIII, 284).

13) $\int_0^{a\pi} l(1-2p\, Cos\, x+p^2) . dx = 0\, [p^2<1], = 2a\pi\, lp\, [p^2>1]$ (VIII, 259*).

14) $\int_0^{\frac{1}{4}a\pi} l\, Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Sin\, 2x}{1-q^2\, Cos^2\, 2x}dx = \pm\frac{a\pi}{2q} Arcsin\, q\, [q<1]$ V. T. 333, N. 15.

15) $\int_0^{\frac{1}{4}a\pi} l\left\{\frac{1+q\, Cos\, x}{1-q\, Cos\, x}\right\}\frac{dx}{Cos\, x} = a\pi\, Arcsin\, q\, [q<1]$ (IV, 469).

F. Logarithmique; Circulaire Directe. TABLE 334. Lim. 0 et λ.

1) $\int l\left\{Cos\, x + \sqrt{Cos^2 x + Sinhp^2\left(\frac{1}{2}\pi-\lambda\right)}\right\} . dx = -\lambda\, l\, Sinhp\left(\frac{1}{2}\pi-\lambda\right)$ (IV, 469*).

2) $\int l\left\{Cos\, x + \sqrt{Cos^2 x - Cos^2\lambda}\right\} . dx = \left(\lambda-\frac{1}{2}\pi\right) l\, Cos\, \lambda$ (IV, 469).

3) $\int l\left\{\frac{Sin\,\lambda + Sin\,\mu . Cos\, x . \sqrt{Sin^2\lambda - Sin^2 x}}{Sin\,\lambda - Sin\,\mu . Cos\, x . \sqrt{Sin^2\lambda - Sin^2 x}}\right\} . dx = \pi\, l\left\{Tg\frac{1}{2}\mu . Sin\,\lambda + \sqrt{Tg^2\frac{1}{2}\mu . Sin^2\lambda + 1}\right\}$ (IV, 470).

4) $\int l\left\{\frac{1+Sin\, x}{1-Sin\, x}\right\}\frac{Cot\, x}{\sqrt{Sin^2\lambda - Sin^2 x}}dx = \pi\lambda\, Cosec\,\lambda$ (IV, 470).

5) $\int\left\{l\left(\frac{1+Sin\, x}{1-Sin\, x}\right) - 2\, Sin\, x\right\}\frac{Cos\, x}{Sin^2 x . \sqrt{Sin^2\lambda - Sin^2 x}}dx = 2\, Cosec\,\lambda . (1-\lambda\, Cot\,\lambda)$ (IV, 470).

6) $\int l\left\{\frac{1+Sin\, x}{1-Sin\, x}\right\}\frac{Sin\, x . Cos\, x}{\sqrt{Sin^2\lambda - Sin^2 x}}dx = \pi(1-Cos\,\lambda)$ (IV, 470).

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7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Tg\,x}{\sqrt{Sin^2\lambda-Sin^2 x}}dx=\pi\,Sec\,\lambda\,.\,l\,Sec\,\lambda$ (IV, 470).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Tg^3 x}{\sqrt{Sin^2\lambda-Sin^2 x}}dx=\frac{\pi}{4}Sin^2\lambda\,.\,Sec^3\lambda-\frac{\pi}{2}Sec^3\lambda\,.\,l\,Cos\,\lambda$ (IV, 470).

9) $\int\left\{l\left(\frac{1+Sin\,x}{1-Sin\,x}\right)-2\,Sin\,x\right\}\frac{Cos\,x}{Sin^3 x\,.\sqrt{Sin^2\lambda-Sin^2 x}}dx=\frac{\pi}{2}Cosec^3\lambda\,.(\lambda-Sin\,\lambda\,.\,Cos\,\lambda)$ (IV, 470).

F. Logarithmique; Circulaire Directe.

TABLE 335.

Lim. λ et $\frac{1}{2}\pi$.

1) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{1-Cos^2\lambda\,.\,Cos^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin^2\mu}}=\frac{\pi}{Sin\,2\lambda}Sin\left(Arctg\frac{Tg\,\lambda}{Sin\,\mu}\right).$

$l\left\{Tg\frac{1}{2}\lambda\,.\,Cot\left(\frac{1}{2}Arctg\frac{Tg\,\lambda}{Sin\,\mu}\right)\right\}$ (IV, 470).

2) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2 x-Sin^2\mu}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\frac{\pi}{2}Cosec\,\lambda\,.\,Sec\,\phi\,.\,l\left(Cot\frac{1}{2}\phi\,.\,Tg\frac{1}{2}\mu\right)\left[Sin\,\phi=\frac{Sin\,\mu}{Sin\,\lambda}\right]$

(IV, 470).

3) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2\lambda+Tg^2\mu\,.\,Sin^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\frac{\pi\,Cos^2\mu}{2\,Sin\,\lambda\,.\,Sin\,\mu}\,l\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{Sin\,\mu\,.(1+Sin\,\lambda)}$

(IV, 470).

4) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\pi\,\mathrm{F}'(Sin\,\lambda)$ (IV, 470).

5) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.\sqrt{Sin^2 x-Sin^2\lambda}\,\frac{dx}{Sin^2 x}=-\pi\,Sin\,\lambda+\pi\,\mathrm{E}'(Sin\,\lambda)$ (IV, 471).

6) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos^2 x}{\sqrt{Sin^2 x-Sin^2\lambda}}dx=-\pi+\pi\,\mathrm{E}'(Sin\,\lambda)$ (IV, 471).

7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Sin^4 x-Sin^4\lambda}{\sqrt{Sin^2 x-Sin^2\lambda}}\frac{dx}{Sin^2 x}=\pi(1-Sin\,\lambda)$ (IV, 471).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.\sqrt{Sin^2 x-Sin^2\lambda}\,dx=\pi+\pi\,Cos^2\lambda\,.\,\mathrm{F}'(Sin\,\lambda)-\pi\,\mathrm{E}'(Sin\,\lambda)$ (IV, 471*).

9) $\int l\left(Cot\frac{1}{2}x\right)\frac{Sin\,x\,.\,Cos\,x}{Sin^2\lambda\,.\,Cos^2\mu+Sin^2\mu\,.\,Sin^2 x}\frac{dx}{\sqrt{Sin^2 x-Sin^2\lambda}}=\frac{1}{Sin\,\lambda\,.\,Sin\,\mu}$

$\left\{l\,Sin\,\lambda+\frac{\pi}{2}\,l\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{1+Sin\,\mu}\right\}$ (IV, 471).

10) $\int l\left\{\frac{Sin\, x+\sqrt{Sin^2 x - Sin^2 \lambda}}{Sin\, x-\sqrt{Sin^2 x - Sin^2 \lambda}}\right\}\frac{dx}{1-Cos^2\mu\,.\,Cos^2 x}=\pi\, Cosec\,\mu\,.\,l\,\frac{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}{(1+Sin\,\mu)\,Sin\,\lambda}$ (IV, 471*).

11) $\int l\left\{Sin\, x+\sqrt{Sin^2 x - Sin^2 \lambda}\right\}\frac{dx}{1-Cos^2\mu\,.\,Cos^2 x}=Cosec\,\mu.\left\{-Arctg\left(\frac{Tg\,\lambda}{Sin\,\mu}\right).\,l\,Sin\,\lambda-\frac{\pi}{2}\right.$ $\left. l\,\frac{1+Sin\,\mu}{Sin\,\mu+\sqrt{1-Cos^2\lambda\,.\,Cos^2\mu}}\right\}$ (IV, 471).

F. Logarithmique; Circ. Dir. [$c = Sin\,\lambda\,.\,Cosec\,\mu$]. TABLE 336. Lim. λ et μ.

1) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}\,dx=\pi\, Cosec\,\mu\,.\,\mathrm{F}(c,\mu)$ (IV, 471).

2) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}\,\frac{dx}{Sin^2 x}=\frac{\pi}{Sin\,\lambda\,.\,Sin\,\mu}+\frac{\pi}{Sin^2\lambda\,.\,Sin\,\mu}$ $\mathrm{F}(c,\mu)-\frac{\pi}{Sin^2\lambda\,.\,Sin\,\mu}\mathrm{E}(c,\mu)$ (IV, 472).

3) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{Sin^2 x}\sqrt{\frac{Sin^2\mu-Sin^2 x}{Sin^2 x-Sin^2\lambda}}\,dx=\pi\,Sin\,\mu\,.\,Cosec\,\lambda+\pi\,\frac{Sin^2\mu-Sin^2\lambda}{Sin^2\lambda\,.\,Sin^2\mu}\,\mathrm{F}(c,\mu)-$ $-\frac{\pi}{Sin^2\lambda}\,Sin\,\mu\,\mathrm{E}(c,\mu)$ (IV, 472).

4) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x}{Sin^2 x}\sqrt{\frac{Sin^2 x-Sin^2\lambda}{Sin^2\mu-Sin^2 x}}\,dx=-\pi\,Sin\,\lambda.Cosec\,\mu+\pi\,Cosec\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 472).

5) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{Cos\,x\,.\,Sin^2 x}{\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}\,dx=\pi\,(1-Cos\,\lambda.Cos\,\mu)+\pi\,Sin\,\mu.\mathrm{F}(c,\mu)-$ $-\pi\,Sin\,\mu\,.\,\mathrm{E}'(c,\mu)$ (IV, 472).

6) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.Cos\,x.\sqrt{\frac{Sin^2\mu-Sin^2 x}{Sin^2 x-Sin^2\lambda}}\,dx=\pi\,(Cos\,\lambda\,.\,Cos\,\mu-1)+\pi\,Sin\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 472).

7) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}.Cos\,x.\sqrt{\frac{Sin^2 x-Sin^2\lambda}{Sin^2\mu-Sin^2 x}}\,dx=\pi(1-Cos\,\lambda.Cos\,\mu)+\frac{Sin^2\mu-Sin^2\lambda}{Sin\,\mu}\,\pi\,\mathrm{F}(c,\mu)-$ $-\pi\,Sin\,\mu\,.\,\mathrm{E}(c,\mu)$ (IV, 473).

8) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{dx}{Cos\,x.\sqrt{(Sin^2 x-Sin^2\lambda)(Sin^2\mu-Sin^2 x)}}=\pi\,Cosec\,\mu\,.\,\Pi(-Sin^2\lambda,c,\mu)+$ $+\frac{1}{2}\pi\,Sec\,\lambda\,.\,Sec\,\mu\,.\,l\left\{1+Tg^2\lambda+Tg^2\mu\right\}$ (IV, 473).

9) $\int l\left\{\frac{1+Sin\,x}{1-Sin\,x}\right\}\frac{dx}{Cos^3x.\sqrt{(Sin^2x-Sin^2\lambda)(Sin^2\mu-Sin^2x)}}=\frac{\pi}{4}\frac{Sin^2\lambda.Cos^2\mu+Sin^2\mu.Cos^2\lambda}{Cos^3\lambda.Cos^3\mu}-$

$-\frac{1}{2}\pi\,Cosec\,\mu.Sec^2\lambda.\mathrm{F}(c,\mu)-\frac{\pi\,Sin\,\mu}{2\,Cos^2\lambda.Cos^2\mu}\mathrm{E}(c,\mu)+\frac{Cos^2\lambda+Cos^2\mu+Cos^2\lambda.Cos^2\mu}{Cos^2\lambda.Cos^2\mu}$

$\left\{\frac{\pi}{2}\,Cosec\,\mu.\Pi(-Sin^2\lambda,c,\mu)+\frac{\pi}{4}\,Sec\,\lambda.Sec\,\mu.l(1+Tg^2\lambda+Tg^2\mu)\right\}$ (IV, 473).

10) $\int\left\{\frac{1+q\,Sin\,x}{1-q\,Sin\,x}\right\}\frac{Cos\,x}{\sqrt{(Sin^2x-Sin^2\lambda)(Sin^2\mu-Sin^2x)}}dx=\pi\,Cosec\,\mu.\mathrm{F}\left\{\frac{Sin\,\lambda}{Sin\,\mu},Arcsin\,(q\,Sin\,\mu)\right\}$

$[q<1]$ (VIII, 311).

TABLE 337.

F. Logarithmique; Circulaire Directe. — Limites diverses.

1) $\int_0^\infty l(1+2p\,Cos\,x+p^2).dx=0\,[p<1],=\infty\,[p\geqq 1]$ (IV, 402).

2) $\int_0^\infty l(1+2p\,Sin\,x+p^2).dx=\sum_0^\infty\frac{1}{2n+1}\frac{2^{n/2}}{3^{n/2}}\left(\frac{2p}{1+p^2}\right)^{2n+1}[p\leqq 1]$ (IV, 402).

3) $\int_0^\infty l\left(1+\frac{p^2}{x^2}\right).Cos\,r\,x\,dx=\frac{\pi}{r}(1-e^{-pr})$ (IV, 402).

4) $\int_0^\infty l\left(\frac{x^2}{p^2+x^2}\right).Cos\,r\,x\,dx=\frac{\pi}{r}(e^{-pr}-1)$ V. T. 337, N. 3.

5) $\int_0^\infty l\left(\frac{p^2+x^2}{q^2+x^2}\right).Cos\,r\,x\,dx=\frac{\pi}{r}(e^{-qr}-e^{-pr})$ V. T. 337, N. 3.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}l\,Cos\,x.Cos^p x.Cos\,p\,x\,dx=-\frac{\pi}{2^p}\,l\,2$ V. T. 485, N. 13.

7) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}l(p\,Sin\,x-r)\frac{Sin\,x}{1-q\,Sin^2x}dx=\frac{\pi}{\sqrt{q(1-q)}}\,l\frac{p\sqrt{q}-\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}{p\sqrt{q}+\{1-\sqrt{1-q}\}\{r+\sqrt{r^2-p^2}\}}$

V. T. 145, N. 22.

8) $\int_0^{Arccos\,(Tghp\,\lambda.Cothp\,\mu)}l\left\{\frac{1-Coshp\,\lambda.Coshp\,\mu.Cos\,x.\sqrt{1-Cothp^2\lambda.Tanghp^2\mu.Cos^2x}}{1+Coshp\,\lambda.Coshp\,\mu.Cos\,x.\sqrt{1-Cothp^2\lambda.Tanghp^2\mu.Cos^2x}}\right\}.dx=$

$=\pi\,l\frac{Sinhp\,\mu.(1+Sinhp\,\lambda)}{Sinhp\,\lambda+\sqrt{1-Coshp^2\lambda.Coshp^2\mu}}$ (IV, 474).

1) $\int_0^{2a\pi} l\,Sin\frac{x}{4a}.\,Cos\frac{bkx}{a}\,dx = \frac{2a\pi}{k}\sum_1^{k-1} Cos\,2bn\pi.\,l\,Sin\frac{n\pi}{2k}$ (IV, 469*).

2) $\int_0^a l(1-q\,Cos\,x)\frac{Cos\,kx}{Cos\,x}\,dx = 0$ (IV, 473).

3) $\int_0^a l(1-2p\,Cos\,x+p^2)\frac{Cos\,2kx}{Cos\,x}\,dx = 0\left[0<a<\frac{1}{2}\pi\right], =\infty\left[\frac{1}{2}\pi<a<\infty\right]$ (VIII, 379).

4) $\int_0^a l(1-2p\,Cos\,x+p^2)\frac{Cos\{(4k\pm1)x\}}{Cos\,x}\,dx = \pm\frac{\pi}{2}l(1+p^2)\left[a=\frac{1}{2}\pi\right], =\pm\pi\,l(1+p^2)$
$\left[\frac{1}{2}\pi<a<\frac{3}{2}\pi\right], =\pm\frac{3\pi}{2}l(1+p^2)\left[a=\frac{3}{2}\pi\right], =\pm\frac{2b-1}{2}\pi\,l(1+p^2)$
$\left[a=\frac{2b-1}{2}\pi\right], =\pm b\pi\,l(1+p^2)\left[a=\frac{2b-1}{2}\pi+c,\ c<\pi\right], =\infty\,[a=\infty]$
(VIII, 379).

F. Logarithmique; Circulaire Inverse. TABLE 339. Lim. 0 et 1.

1) $\int Arcsin\,x.\,lx.\,dx = 2-l2-\frac{1}{2}\pi$ V. T. 118, N. 4 et T. 76, N. 1.

2) $\int Arccos\,x.\,lx.\,dx = l2-2$ V. T. 118, N. 4 et T. 76, N. 2.

3) $\int Arctg\,x.\,lx.\,dx = \frac{1}{2}l2-\frac{\pi}{4}+\frac{1}{48}\pi^2$ V. T. 108, N. 1 et T. 76, N. 3.

4) $\int Arccot\,x.\,lx.\,dx = -\frac{1}{48}\pi^2-\frac{\pi}{4}-\frac{1}{2}l2$ V. T. 108, N. 1 et T. 76, N. 4.

5) $\int Arctg\,x.(lx)^2.(lx+3)\,dx = \frac{7}{1920}\pi^4$ V. T. 109, N. 9.

6) $\int Arctg\,x.(lx)^4.(lx+5)\,dx = \frac{31}{16128}\pi^6$ V. T. 109, N. 20.

7) $\int Arctg\,x.(lx)^{a-1}.(lx+a)\,dx = \frac{1^{a/1}}{(-2)^{a+1}}\sum_0^\infty\frac{(-1)^n}{(n+1)^{a+1}}$ V. T. 110, N. 3.

8) $\int Arccos\,x\frac{dx}{lx} = -\sum_0^\infty\frac{1^{n/2}}{2^{n/2}}\frac{l(2n+2)}{2n+1}$ (VIII, 278).

9) $\int (Arccos\,x)^2\frac{dx}{lx} = -\sum_0^\infty\frac{2^{n/2}}{3^{n/2}}\frac{l(2n+1)}{n}$ (VIII, 278).

10) $\int Arctg\,x.\,l(1+x^2).\,dx = \frac{\pi}{4}l2-\frac{\pi}{2}+l2+\frac{1}{16}\pi^2-\frac{1}{4}(l2)^2$ V. T. 232, N. 9.

F. Logarithmique; Autre Fonction.	TABLE 340.	Lim. diverses.

1) $\int_0^1 li\left(\frac{1}{x}\right).\left(l\frac{1}{x}\right)^{p-1}.dx = -\pi\, Cotp\pi.\Gamma(p)$ (VIII, 542).

2) $\int_0^1 l\Gamma(x).dx = \frac{1}{2}\, l2\pi$ (VIII, 271). 3) $\int_0^1 l\Gamma(1+x).dx = -1+\frac{1}{2}\, l2\pi$ V. T. 340, N. 5.

4) $\int_0^1 l\Gamma(1-x).dx = \frac{1}{2}\, l2\pi$ (VIII, 271). 5) $\int_0^1 l\Gamma(x+q)\,dx = \frac{1}{2}\, l2\pi + q\, lq - q$ (VIII, 472*).

6) $\int_0^{\frac{1}{2}\pi} l\Theta(q,x).dx = \frac{\pi}{4}\, l\left\{\frac{1}{\pi}F'(p).(2p)^{\frac{1}{3}}\sqrt{1-p^2}^{\frac{1}{3}}\, e^{\frac{\pi}{6}\frac{F'[\sqrt{(1-p^2)}]}{F'(p)}}\right\}$ (IV, 475).

7) $\int_p^{p+1} l\Gamma(x).dx = \frac{1}{2}\, l2\pi + p(lp-1)$ V. T. 340, N. 5.

8) $\int_0^\infty li\left(\frac{1}{x}\right).(lx)^{p-1}.dx = -\pi\, Sinp\pi.\Gamma(p)$ (VIII, 542).

9) $\int_1^\infty li\left(\frac{1}{x}\right).(lx)^{p-1}.dx = -\frac{\pi}{Sinp\pi}\Gamma(p)$ (VIII, 542).

F. Circ. Dir. ent.; Circ. Inverse.	TABLE 341.	Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg(Tang^2 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 10.

2) $\int Arctg(Tang^3 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 11.

3) $\int Arccot(Tang^2 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 18.

4) $\int Arccot(Tang^3 x).dx = \frac{1}{8}\pi^2$ V. T. 252, N. 19.

5) $\int Arcsin(p\, Sin\, x).Cos\, x\, dx = Arcsinp + \frac{1}{p}\sqrt{1-p^2} - \frac{1}{p}$ V. T. 76, N. 1.

6) $\int Arctg(p\, Cot\, x).Tg\, x\, dx = \frac{\pi}{2}\, l(1+p)$ V. T. 250, N. 3.

7) $\int Arctg(p\, Tg\, x).Tg\, 2x\, dx = \frac{\pi}{4}\, l\frac{1+p^2}{(1+p)^2}$ V. T. 342, N. 4, 8.

8) $\int Arctg\,(p\,Cot\,x).Tg\,2\,x\,dx = \frac{\pi}{4}\,l\,\frac{(1+p)^2}{1+p^2}$ V. T. 248, N. 5.

9) $\int Arccot\,(p\,Tg\,x).Tg\,x\,dx = \frac{\pi}{2}\,l\,\frac{1+p}{p}$ V. T. 248, N. 8.

10) $\int Arctg\left(\frac{1}{q}\sqrt{Tg\,x}\right)\frac{dx}{(Sin\,x + p^2\,Cos\,x)^2} = \frac{\pi}{2\,p\,(p+q)}$ V. T. 252, N. 12.

11) $\int Arccot\left(\frac{1}{q}\sqrt{Tg\,x}\right)\frac{dx}{(Sin\,x + p^2\,Cos\,x)^2} = \frac{q\,\pi}{2\,p^2\,(p+q)}$ V. T. 252, N. 20.

12) $\int Arctg\,\{Tg\,\lambda\,.\sqrt{1-p^2\,Sin^2\,x}\}.\sqrt{1-p^2\,Sin^2\,x}\,dx = \frac{\pi}{2}\,\mathrm{E}\,(p,\lambda) - \frac{\pi}{2}\,Cot\,\lambda.\{1-\sqrt{1-p^2\,Sin^2\,\lambda}\}$ (VIII, 309*).

13) $\int Arccot\{Tg\,\lambda.\sqrt{1-p^2\,Sin^2\,\lambda}\}.\sqrt{1-p^2\,Sin^2\,x}\,dx = \frac{\pi}{2}\,\mathrm{E}\,[p, Arccot\{Tg\,\lambda.\sqrt{1-p^2}\}] -$

$- \frac{\pi}{2}\,Cot\,\lambda.\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\,\lambda}} - 1\right\}$ (VIII, 309*).

14) $\int Arctg\left\{\frac{p\,Sin\,(r\,Tg\,x)}{1+p\,Cos\,(r\,Tg\,x)}\right\}.Tg\,x\,dx = \frac{\pi}{2}\,l(1+p\,e^{-r})$ V. T. 446, N. 8.

F. Circ. Dir. en dén. monôme; Circ. Inverse à un facteur. TABLE 342. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\,(p\,Sin\,x)\,\frac{dx}{Sin\,x} = \frac{\pi}{2}\,l\,\{p + \sqrt{1+p^2}\}$ $[p \geqq 1]$ V. T. 244, N. 11.

2) $\int Arctg\,(p\,Cos\,x)\,\frac{dx}{Cos\,x} = \frac{\pi}{2}\,l\,\{p + \sqrt{1+p^2}\}$ $[p \geqq 1]$ V. T. 244, N. 11.

3) $\int Arctg\,(p\,Cot\,x)\,\frac{Tg\,x}{Cos\,2\,x}\,dx = -\frac{\pi}{4}\,l(1+p^2)$ V. T. 248, N. 10.

4) $\int Arctg\,(p\,Tg\,x)\,\frac{dx}{Tg\,x} = \frac{\pi}{2}\,l(1+p)$ (VIII, 612).

5) $\int Arctg\left\{\frac{p\,Sin\,(r\,Cot\,x)}{1+p\,Cos\,(r\,Cot\,x)}\right\}\frac{dx}{Tg\,x} = \frac{\pi}{2}\,l(1+p\,e^{-r})$ V. T. 446, N. 8.

6) $\int Arctg\,(p\,Tg\,x)\,\frac{Cos^3\,x}{Sin\,x\,.\,Cos\,2\,x}\,dx = \frac{\pi}{8}\,l\,\{(1+p)^2\,(1+p^2)\}$ V. T. 342, N. 4, 8.

7) $\int Arctg\,(p\,Cot\,x)\,\frac{Sin^3 x\,dx}{Cos\,x\,.\,Cos\,2\,x} = -\frac{\pi}{8}\,l\{(1+p^2)(1+p)^2\}$ V. T. 341, N. 6 et T. 342, N. 3.

8) $\int Arctg\,(p\,Tg\,x)\,\frac{dx}{Tg\,x\,.\,Cos\,2\,x} = \frac{\pi}{4}\,l(1+p^2)$ V. T. 248, N. 10.

9) $\int \{Arctg\,((p\,Tg\,x)) - Arctg\,((q\,Tg\,x))\}\,\frac{dx}{Sin\,2\,x} = \frac{\pi}{4}\,l\frac{p}{q}$ V. T. 247, N. 4.

10) $\int \{Arctg\,((r+p\,Tg\,x)) - Arctg\,((r+q\,Tg\,x))\}\,\frac{dx}{Sin\,2\,x} = \frac{1}{2}\,Arccot\,r\,.\,l\frac{p}{q}$ V. T. 252, N. 1.

11) $\int \{Arctg\,((r+p\,Cot\,x)) - Arctg\,((r+q\,Cot\,x))\}\,\frac{dx}{Sin\,2\,x} = \frac{1}{2}\,Arccot\,r\,.\,l\frac{p}{q}$ V. T. 252, N. 1.

12) $\int \{Arccot\,((p\,Tg\,x)) - Arccot\,((q\,Tg\,x))\}\,\frac{dx}{Sin\,2\,x} = \frac{\pi}{4}\,l\frac{q}{p}$ V. T. 247, N. 4.

13) $\int \{Sin^2 x\,.\,Arccot\,(Sin\,x) - Arctg\,(Sin\,x)\}\,\frac{dx}{Sin\,2\,x} = -\frac{1}{8}\,\pi\,l\,2$ V. T. 232, N. 1.

F. Circ. Dir. en dén. monôme; Circ. Inverse à plusieurs fact. TABLE 343. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\left(\frac{1}{q}\,Tg\,x\right).\,Arctg\left(\frac{1}{p}\,Tg\,x\right)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p+q}{p} + \frac{1}{p}\,l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

2) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).\,Arccot\,(q\,Tg\,x)\,\frac{dx}{Sin^2 x} = \infty$ V. T. 252, N. 4.

3) $\int Arctg\left(\frac{p-r}{Cot\,x+pr\,Tg\,x}\right).\,Arccot\,(q\,Tg\,x)\,\frac{dx}{Sin^2 x} = \infty$ V. T. 252, N. 5.

4) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).\,Arctg\,(q\,Tg\,x)\,\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{q\,l\frac{p}{r} + \frac{qr+1}{r}\,l\frac{qr+1}{q} - \frac{pq+1}{p}\right.$
$\left. l\frac{pq+1}{p} + \frac{p-r}{pr}\,l\,q\right\}$ V. T. 252, N. 7.

5) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).\,Arctg\,(q\,Tg\,x)\,\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{p\,l\frac{p+q}{p} - r\,l\frac{q+r}{r} + q\,l\frac{p+q}{q+r}\right\}$
V. T. 252, N. 8.

6) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).\,Arctg\left(\frac{q-s}{Tg\,x+qs\,Cot\,x}\right)\frac{dx}{Sin^2 x} = \frac{\pi}{2}\left\{\frac{q-s}{qs}\,l\frac{p}{r} + \frac{p-r}{pr}\,l\frac{q}{s} +\right.$
$\left. + \frac{1}{p}\,l\frac{p+q}{p+s} + \frac{1}{q}\,l\frac{q+p}{q+r} + \frac{1}{r}\,l\frac{r+s}{r+q} + \frac{1}{s}\,l\frac{s+r}{s+p}\right\}$ V. T. 252, N. 6.

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7) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arctg\left(\frac{q-s}{Tg\,x+qs\,Cot\,x}\right)\frac{dx}{Sin^2x}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{pq+1}{q}\,l(1+pq)+\right.$
$\left.+\frac{ps+1}{s}\,l(1+ps)-\frac{1+rs}{s}\,l(1+rs)+\frac{1+qr}{q}\,l(1+qr)\right\}$ V. T. 252, N. 9.

8) $\int\left\{Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right)\right\}^2\frac{dx}{Sin^2x}=\frac{2\pi}{r}\,lp+\frac{2\pi}{p}\,lr-2\pi\frac{p+r}{pr}\,l\frac{p+r}{2}$ V. T. 252, N. 3.

9) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arctg\left(\frac{q-s}{qs\,Tg\,x+Cot\,x}\right)\frac{dx}{Cos^2x}=\frac{\pi}{2}\left\{\frac{q-s}{qs}\,l\frac{p}{r}+\frac{p-r}{pr}\,l\frac{q}{s}+\frac{1}{p}\,l\frac{p+q}{p+s}+\right.$
$\left.+\frac{1}{q}\,l\frac{p+q}{q+r}+\frac{1}{r}\,l\frac{r+s}{r+q}+\frac{1}{s}\,l\frac{s+r}{s+p}\right\}$ V. T. 252, N. 6.

10) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arctg\left(\frac{q-s}{qs\,Tg\,x+Cot\,x}\right)\frac{dx}{Cos^2x}=\frac{\pi}{2}\left\{(p-r)\,l\frac{q}{s}-\frac{pq+1}{q}\,l(1+pq)+\right.$
$\left.+\frac{ps+1}{s}\,l(1+ps)-\frac{rs+1}{s}\,l(1+rs)+\frac{qr+1}{q}\,l(1+qr)\right\}$ V. T. 252, N. 9.

11) $\int Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Cos^2x}=\frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p}{r}+\frac{q+r}{qr}\,l(q+r)-\right.$
$\left.-\frac{p+q}{pq}\,l(p+q)-\frac{p-r}{pr}\,lq\right\}$ V. T. 252, N. 7.

12) $\int Arctg\left(\frac{p-r}{Tg\,x+pr\,Cot\,x}\right).Arccot(q\,Tg\,x)\frac{dx}{Cos^2x}=\frac{\pi}{2}\left\{p\,l\frac{1+pq}{pq}-r\,l\frac{1+qr}{qr}+\frac{1}{q}\,l\frac{pq+1}{qr+1}\right\}$
V. T. 252, N. 8.

13) $\int Arccot(p\,Tg\,x).Arccot(q\,Tg\,x)\frac{dx}{Cos^2x}=\frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p+q}{p}+\frac{1}{p}\,l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

14) $\int\left\{Arctg\left(\frac{p-r}{pr\,Tg\,x+Cot\,x}\right)\right\}^2\frac{dx}{Cos^2x}=\frac{2\pi}{r}\,lp+\frac{2\pi}{p}\,lr-2\pi\frac{p+r}{pr}\,l\frac{p+r}{2}$ V. T. 252, N. 3.

F. Circ. Dir. en dén. binôme; Circul. Inverse. TABLE 344. Lim. 0 et $\frac{\pi}{2}$.

1) $\int Arctg\left(\frac{2p\,Cos^2x}{1-p^2\,Cos^2x}\right)\frac{dx}{r^2\,Cos^2x+q^2\,Sin^2x}=\frac{\pi}{qr}\,Arctg\,\frac{pq}{q+r}$ (VIII, 275*).

2) $\int Arcsin(p\,Sin\,x)\,\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2x}}\,dx=-\frac{\pi}{4p}\,l(1-p^2)$ V. T. 236, N. 1.

3) $\int Arctg\left\{Tg\,\lambda.\sqrt{1-p^2Sin^2x}\right\}\frac{dx}{\sqrt{1-p^2Sin^2x}}=\frac{\pi}{2}\,F(p,\lambda)$ (VIII, 340).

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4) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}[F(p,\lambda)-E(p,\lambda)+$
$+Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\}]$ (VIII, 341).

5) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}[E(p,\lambda)-(1-p^2)F(p,\lambda)+$
$+Cot\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-1\}]$ (VIII, 342).

6) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Cos 2x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}[2E(p,\lambda)-(2-p^2)F(p,\lambda)+$
$+2Cot\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-1\}]$ V. T. 344, N. 4, 5.

7) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{\pi}{2(1-p^2)}[E(p,\lambda)-$
$-Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 340).

8) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^2(1-p^2)}[E(p,\lambda)-(1-p^2)F(p,\lambda)-$
$-Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 342).

9) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^2}[F(p,\lambda)-E(p,\lambda)+$
$+Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}]$ (VIII, 342).

10) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Cos 2x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^2(1-p^2)}[2(1-p^2)F(p,\lambda)-$
$-(2-p^2)E(p,\lambda)+(2-p^2)Tg\lambda.\{\sqrt{1-p^2 Sin^2\lambda}-\sqrt{1-p^2}\}]$ V. T. 344, N. 8, 9.

11) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4(1-p^2)}[(2-p^2)E(p,\lambda)-$
$-2(1-p^2)F(p,\lambda)+\{Tg\lambda.\sqrt{1-p^2}-(1-p^2)Cot\lambda\}+\{(1-p^2)Cot\lambda-Tg\lambda\}$
$.\sqrt{1-p^2 Sin^2\lambda}]$ V. T. 344, N. 4, 8.

12) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Sin^2 x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4}[(2-p^2)F(p,\lambda)-2E(p,\lambda)+$
$+(Cot\lambda-Tg\lambda.\sqrt{1-p^2})+(Tg\lambda-Cot\lambda)\sqrt{1-p^2 Sin^2\lambda}]$ V. T. 344, N. 5, 9.

13) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\right\}\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4}[(2-p^2)E(p,\lambda)-2(1-p^2)F(p,\lambda)+$
$+(Tg\lambda.\sqrt{1-p^2}^3-Cot\lambda)+\{Cot\lambda-(1-p^2)Tg\lambda\}\sqrt{1-p^2 Sin^2\lambda}]$ V. T. 344, N. 9, 12.

14) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}} = \frac{\pi}{2}F(p,\Phi)$ (VIII, 341).

15) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}\Big[F(p,\Phi)-E(p,\Phi)+$
$+Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}\Big]$ (VIII, 342).

16) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}\Big[E(p,\Phi)-(1-p^2)F(p,\Phi)-$
$-Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}\Big]$ (VIII, 342).

17) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}\Big[2E(p,\Phi)-(2-p^2)F(p,\Phi)-$
$-2Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}\Big]$ V. T. 344, N. 15, 16.

18) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{dx}{\sqrt{1-p^2 Sin^2 x}^3} = \frac{\pi}{2}\Big[\frac{1}{1-p^2}E(p,\Phi)-$
$-Tg\lambda.\Big\{\frac{1}{\sqrt{1-p^2}}-\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}\Big\}\Big]$ (VIII, 341).

19) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^2}\Big[\frac{1}{1-p^2}E(p,\Phi)-F(p,\Phi)-$
$-Tg\lambda.\Big\{\frac{1}{\sqrt{1-p^2}}-\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}\Big\}\Big]$ (VIII, 342).

20) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Cos^2 x}{\sqrt{1-p^2 Sin^2 x}}dx = \frac{\pi}{2p^2}\Big[F(p,\Phi)-E(p,\Phi)+$
$+(1-p^2)Tg\lambda.\Big\{\frac{1}{\sqrt{1-p^2}}-\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}\Big\}\Big]$ (VIII, 342).

21) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Cos\,2x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^2}\Big[2F(p,\Phi)-\frac{2-p^2}{1-p^2}E(p,\Phi)+$
$+(2-p^2)Tg\lambda.\Big\{\frac{1}{\sqrt{1-p^2}}-\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}\Big\}\Big]$ V. T. 344, N. 19, 20.

22) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4}\Big[\frac{2-p^2}{1-p^2}E(p,\Phi)-2F(p,\Phi)+$
$+\Big(Cot\lambda-\frac{Tg\lambda}{\sqrt{1-p^2}}\Big)+\frac{Tg\lambda-Cot\lambda}{\sqrt{1-p^2 Sin^2\lambda}}\Big]$ V. T. 344, N. 13, 19.

23) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4}\Big[(2-p^2)F(p,\varphi)-2E(p,\varphi)+$

$+(Tg\lambda.\sqrt{1-p^2}-Cot\lambda)+\frac{Cot\lambda-(1-p^2)Tg\lambda}{\sqrt{1-p^2 Sin^2\lambda}}\Big]$ V. T. 344, N. 16, 20.

24) $\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Cos^4 x}{\sqrt{1-p^2 Sin^2 x}^3}dx = \frac{\pi}{2p^4}\Big[(2-p^2)E(p,\varphi)-2(1-p^2)$

$F(p,\varphi)+(Cot\lambda-Tg\lambda.\sqrt{1-p^2}^3)+\frac{(1-p^2)^2 Tg\lambda-Cot\lambda}{\sqrt{1-p^2 Sin^2\lambda}}\Big]$ V. T. 344, N. 20, 23.

Dans 14) à 24) on a $Cot\varphi = Tg\lambda.\sqrt{1-p^2}$.

F. Circ. Dir. entière; Circul. Inverse. TABLE 345. Lim. 0 et π.

1) $\int Arctg(Cos x).dx = 0$ V. T. 219, N. 11.

2) $\int Arctg\left(\frac{Sin^2 x}{\sqrt{p^2-1}}\right).dx = 4\sum_0^\infty\frac{\{p-\sqrt{p^2-1}\}^{2n+1}}{(2n+1)^2}$ $[p>1]$ V. T. 219, N. 16.

3) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right).Sin x\, dx = \frac{1}{2}p\pi$ $[p^2<1]$ (VIII, 583).

4) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right).Sin a x\, dx = \frac{\pi}{2a}p^a$ $[p^2\leqq 1]$ (VIII, 276).

5) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right).Sin a x.Cos x\, dx = \frac{\pi}{4}\left(\frac{p^{a+1}}{a+1}+\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

6) $\int Arctg\left(\frac{p Sin x}{1-p Cos x}\right).Cos a x.Sin x\, dx = \frac{\pi}{4}\left(\frac{p^{a+1}}{a+1}-\frac{p^{a-1}}{a-1}\right)$ (VIII, 583).

7) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right).Sin 2ax\, dx = 0$ V. T. 345, N. 4.

8) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right).Sin\{(2a-1)x\}\, dx = \frac{\pi}{2a-1}p^{2a-1}$ V. T. 345, N. 4.

9) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right).Sin 2ax.Cos x\, dx = \frac{\pi}{2}\left(\frac{p^{2a+1}}{2a+1}+\frac{p^{2a-1}}{2a-1}\right)$ V. T. 345, N. 8.

10) $\int Arctg\left(\frac{2p Sin x}{1-p^2}\right).Cos 2ax.Sin x\, dx = \frac{\pi}{2}\left(\frac{p^{2a+1}}{2a+1}-\frac{p^{2a-1}}{2a-1}\right)$ V. T. 345, N. 8.

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11) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\{(2a-1)x\}.Cos\,x\,dx=0$ V. T. 345, N. 7.

12) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\{(2a-1)x\}.Sin\,x\,dx=0$ V. T. 345, N. 7.

13) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\,2ax\,dx=\frac{\pi}{a}p^a$ V. T. 345, N. 4.

14) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\{(2a-1)x\}\,dx=0$ V. T. 345, N. 4.

15) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,2x}\right).Sin\,2ax.Cos\,x\,dx=0$ V. T. 345, N. 14.

16) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Cos\,2ax.Sin\,x\,dx=0$ V. T. 345, N. 14.

17) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Sin\{(2a-1)x\}.Cos\,x\,dx=\frac{\pi}{4}\left\{\frac{1}{a}p^a+\frac{1}{a-1}p^{a-1}\right\}$ V. T. 345, N. 13.

18) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right).Cos\{(2a-1)x\}.Sin\,x\,dx=\frac{\pi}{4}\left\{\frac{1}{a}p^a-\frac{1}{a-1}p^{a-1}\right\}$ V. T. 345, N. 13.

Dans 5) à 18) on a $[p<1]$.

19) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right).Tg\frac{1}{2}x\,dx=\pi\,l(1+p)\;[p^2\leqq 1]$ (VIII, 563).

20) $\int Arctg\left(\frac{2p\,Cos\,x}{1-p^2}\right).Cos\{(2a+1)x\}\,dx=\pi p^{2a+1}\frac{(-1)^a}{2a+1}$ (VIII, 277).

21) $\int(1+2p\,Cos\,x+p^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{p\,Sin\,x}{1+p\,Cos\,x}\right)\right\}.Sin\,bx\,dx=\frac{\pi}{2}p^b\binom{a}{b}$ (VIII, 277).

22) $\int(1+2p\,Cos\,x+p^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{p\,Sin\,x}{1+p\,Cos\,x}\right)\right\}.Cos\,bx\,dx=\frac{\pi}{2}p^b\binom{a}{b}$ (VIII, 277).

23) $\int(q^2+2qs\,Cos\,x+s^2)^{\frac{1}{2}p}\,Cos\left\{rx-p\,Arctg\left(\frac{q\,Sin\,x}{s+q\,Cos\,x}\right)\right\}dx=\frac{\pi q^r s^{p-r}\Gamma(p-r+1)}{\Gamma(1+r)\Gamma(1+p)}$

$[s>q]$ (IV, 554*).

24) $\int(1+2q\,Cos\,x+q^2)^{\frac{1}{2}r}\,(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}s}\,Sin\left\{r\,Arccos\left(\frac{1+q\,Cos\,x}{\sqrt{1+2q\,Cos\,x+q^2}}\right)\right\}.$

$.Sin\left\{s\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}dx=\frac{\pi}{2}q^s.\sum_1^\infty\binom{r}{n}\binom{s}{n}p^n$ (VIII, 632).

25) $\int (1+2q\,Cos\,x+q^2)^{\frac{1}{2}r}(p^2+2pq\,Cos\,x+q^2)^{\frac{1}{2}s}\,Cos\left\{r\,Arccos\left(\frac{1+q\,Cos\,x}{\sqrt{1+2q\,Cos\,x+q^2}}\right)\right\}.$

$. Cos\left\{s\,Arccos\left(\frac{q+p\,Cos\,x}{\sqrt{p^2+2pq\,Cos\,x+q^2}}\right)\right\}dx=\frac{\pi}{2}q^s\left[2+\sum_1^\infty\binom{r}{n}\binom{s}{n}p^n\right]$ (VIII, 632).

1) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Sin\,x}=\frac{\pi}{2}\,l\frac{1+p}{1-p}\,[p^2\leqq 1]$ (VIII, 563).

2) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Tg\,\frac{1}{2}x}=-\pi\,l(1-p)\,[p^2\leqq 1]$ (VIII, 563).

3) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{dx}{Tg\,x}=-\frac{\pi}{2}\,l(1-p^2)\,[p^2<1],=\frac{\pi}{2}\,l\frac{p^2-1}{4p^2}\,[p^2>1]$ (VIII, 582).

4) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Cos^2x}{Sin\,x}dx=\frac{\pi}{2}\left\{l\frac{1+p}{1-p}-p\right\}$ (VIII, 583).

5) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{dx}{Sin\,x}=\pi\,l\frac{1+p}{1-p}$ V. T. 346, N. 1.

6) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{dx}{Tg\,x}=0$ V. T. 346, N. 3.

7) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{Cos^2x}{Sin\,x}dx=\pi\left\{l\frac{1+p}{1-p}-p\right\}$ V. T. 346, N. 4.

Dans 4) à 7) on a $[p<1]$.

8) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{dx}{Sin\,x}=0\,[p<1]$ V. T. 346, N. 1.

9) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{dx}{Tg\,x}=-\pi\,l(1-p)\,[p<1],=\pi\,l\frac{p-1}{4p}\,[p>1]$ V. T. 346, N. 3.

10) $\int Arctg\left(\frac{p\,Sin\,2x}{1-p\,Cos\,2x}\right)\frac{Cos^2x}{Sin\,x}dx=0\,[p<1]$ V. T. 346, N. 4.

11) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Sin\,x}{1-2q\,Cos\,x+q^2}dx=-\frac{\pi}{2q}\,l(1-pq)\,[p^2\leqq 1,\,q^2\leqq 1]$ (VIII, 560).

12) $\int Sin\left\{r\, Arccos\left(\frac{q+p\, Cos\, x}{\sqrt{p^2+2pq\, Cos\, x+q^2}}\right)\right\}\frac{Sin\, s\, x}{1-2q^s\, Cos\, s\, x+q^{2s}}(p^2+2pq\, Cos\, x+q^2)^{\frac{1}{2}r}\,dx=$
$=\frac{\pi}{2}q^{r-s}\sum_1^\infty\binom{r}{ns}p^{ns}$ (VIII, 635).

13) $\int Cos\left\{r\, Arccos\left(\frac{q+p\, Cos\, x}{\sqrt{p^2+2pq\, Cos\, x+q^2}}\right)\right\}\frac{1-q^s\, Cos\, s\, x}{1-2q^s\, Cos\, s\, x+q^{2s}}(p^2+2pq\, Cos\, x+q^2)^{\frac{1}{2}r}\,dx=$
$=\frac{\pi}{2}q^r\left\{2+\sum_1^\infty\binom{r}{ns}p^{ns}\right\}$ (VIII, 634).

14) $\int Arctg\left(\frac{q\, Sin\, x}{p+q\, Cos\, x}\right)\frac{Sin\, x}{\sqrt{1-2p\, Cos\, x+p^2}}\,dx=\frac{1+q}{pq}\,\frac{p^2+q}{p-q}\,\frac{p+q}{p+1}\,\Pi'\left\{\frac{4pq}{(p-q)^2}\,\frac{2\sqrt{p}}{1+p}\right\}-$
$-\frac{(1+q)(p-q^2)}{pq}F'(p)-\frac{2}{p}E'(p)+\frac{1+p}{p}D$, où $D=\pi\,[q<-p],=\frac{1-p}{1+p}\frac{\pi}{2}\,[q=-p],=$
$=0\,[-p<q<p],=\frac{\pi}{2}\,[q=p],=\pi\,[q>p]$ (IV, 480*).

15) $\int Arctg\left\{\frac{p\, Cos\, x}{\sqrt{q^2-p^2\, Cos^2 x}}\right\}\frac{Cos\, x}{\sqrt{q^2-p^2\, Cos^2 x}}\,dx=\frac{\pi}{2p}\,l\,\frac{q}{q-p^2}$ (IV, 481).

16) $\int Arctg\left\{\frac{Tg\,\lambda}{\sqrt{1-p^2\, Sin^2\lambda}}\sqrt{1-2p\, Cos\, x+p^2}\right\}\frac{dx}{\sqrt{1-2p\, Cos\, x+p^2}}=\pi\, F(p,\lambda)$ (IV, 480).

F. Circul. Directe; Circul. Inverse. TABLE 347. Lim. 0 et ∞.

1) $\int Arccot\frac{x}{q}.\,Sin\, p\, x\, dx=\frac{\pi}{2p}(1-e^{-pq})$ (VIII, 452).

2) $\int Arccot\frac{x}{q}.\,Cos\, p\, x\, dx=\frac{1}{2p}\left\{e^{-pq}\, Ei(pq)-e^{pq}\, Ei(-pq)\right\}$ (VIII, 597).

3) $\int Arctg\frac{p}{x}.\,Cos^{2a-1}x.\,Sin\, x\, dx=-\frac{\pi}{4a}+\frac{\pi}{2a}\,\frac{e^p+e^{-p}}{e^p-e^{-p}}\sum_0^\infty\frac{3^{a+n/2}}{2^{a+n/2}}\left(\frac{2}{e^p+e^{-p}}\right)^{2n}$ (VIII, 420).

4) $\int Arctg\frac{p}{x}.\,Cos^{2a}x.\,Sin\, x\, dx=\frac{-\pi}{2(2a+1)}+\frac{\pi}{2(2a+1)}\sum_1^\infty\frac{3^{a+n/2}}{2^{a+n/2}}\left(\frac{2}{e^p+e^{-p}}\right)^{2n-1}$ (VIII, 420).

5) $\int Arctg\left(\frac{p^2\, Sin^2 x.\, Sin\, 2x}{x^2-p^2\, Sin^2 x.\, Cos\, 2x}\right).\,Tg\, x\, dx=\pi\, l\,\frac{e^p-e^{-p}}{2}$

6) $\int Arctg\left(\frac{p^2\, Sin^2 x.\, Sin\, 2x}{x^2+p^2\, Sin^2 x.\, Cos\, 2x}\right).\,Tg\, x\, dx=\pi\, l\, Sec\, p$

Sur 5) et 6) voyez W. R. Hamilton, L. & E. Phil. Mag. 23, 360.

7) $\int Cos^{p+1}\left(Arctg\frac{x}{q}\right).Sin\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Sin\,x\,dx=\frac{\pi q^{p+1}e^{-q}}{2\Gamma(p+1)}$ V. T. 43, N. 12.

8) $\int Cos^{p+1}\left(Arctg\frac{x}{q}\right).Cos\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Cos\,x\,dx=\frac{\pi q^{p+1}e^{-q}}{2\Gamma(p+1)}$ V. T. 43, N. 13.

9) $\int Arctg\frac{p}{x}\,\frac{Tg\,x}{q^2\,Cos^2x+r^2\,Sin^2x}\,dx=\frac{\pi}{2r^2}\,l\left(1+\frac{r}{q}\,\frac{e^p-e^{-p}}{e^p+e^{-p}}\right)$ (VIII, 420).

10) $\int Arctg\frac{r}{x}\,\frac{Sin\,px}{1\pm2q\,Cos\,px+q^2}\,dx=\pm\frac{\pi}{2pq}\,l\frac{1\pm q}{1\pm q\,e^{-pr}}\,[q^2<1]=\pm\frac{\pi}{2pq}\,l\frac{q\pm1}{q\pm e^{-pr}}\,[q^2>1]$
(VIII, 599).

11) $\int Arctg\frac{r}{x}\,\frac{Sin\,px}{(1-2q\,Cos\,px+q^2)^2}\,dx=\frac{\pi}{2p(1+q)(1-q)^2}\,\frac{1-e^{-pr}}{1-q\,e^{-pr}}\,[q^2<1]$ (VIII, 598).

F. Circul. Directe; Circul. Inverse. TABLE 348. Lim. diverses.

1) $\int_0^{\frac{\pi}{4}}Arcsin(Tg\,x)\,\frac{dx}{Sin\,2x}=\frac{\pi}{4}\,l2$ V. T. 230, N. 1.

2) $\int_0^{\frac{\pi}{4}}Arctg\left(\frac{p\sqrt{Cos\,2x}}{Cos\,x}\right)\frac{dx}{Cos\,2x}=\frac{\pi}{2}\,l\left\{p+\sqrt{1+p^2}\right\}$ V. T. 245, N. 10.

3) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}}Arctg(p+q\,Tg\,x)\,dx=-\pi\left\{\frac{1}{2}\,Arctg\left(\frac{2pq}{1+p^2-q^2}\right)-Arctg\left(\frac{2p}{1-p^2-q^2}\right)\right\}$
V. T. 254, N. 10.

F. Circul. Directe; Circul. Inverse. } Intégr. Lim. (Lim. $k=\infty$.) TABLE 349. Lim. diverses.

1) $\int_0^a Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right)\frac{Cos\,kx}{Sin\,x}\,dx=0\,[0<a<\infty]$ (VIII, 379).

F. Circul. Directe; Autre Fonction. TABLE 350. Lim. 0 et $\frac{\pi}{2}$.

1) $\int F(p,x).\,Cot\,x\,dx=\frac{\pi}{4}\,F'\left\{\sqrt{1-p^2}\right\}+\frac{1}{2}\,lp.F'(p)$ Sylvester, Phil. Mag. 4th Ser., 20, 525.

2) $\int F(p,x)\,\frac{Sin\,x.\,Cos\,x}{1-p^2\,Sin^2x}\,dx=-\frac{1}{4p^2}\,l(1-p^2).F'(p)$ (VIII, 368).

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3) $\int E(p, Sin\,x) \frac{Sin\,x}{1-p^2\,Sin^2\,x}\,dx = \frac{\pi}{2\sqrt{1-p^2}}$ (VIII, 478).

4) $\int E(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2\,Sin^2\,x}\,dx = -\frac{1}{2p^2}\left[(p^2-2)F'(p) + \left\{2+\frac{1}{2}\,l(1-p^2)\right\}E'(p)\right]$ (VIII, 368).

5) $\int F\{\sqrt{1-p^2},x\} \frac{Sin\,x\,.\,Cos\,x}{Cos^2\,x + p\,Sin^2\,x}\,dx = \frac{1}{4(1-p)}\,l\left\{\frac{2}{(1+p)\sqrt{p}}\right\}.F'\{\sqrt{1-p^2}\}$ (VIII, 369).

6) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1+p\,Sin^2\,x}\,dx = \frac{1}{4p}\,F'(p).l\left\{\frac{(1+p)\sqrt{p}}{2}\right\} + \frac{\pi}{16p}\,F'\{\sqrt{1-p^2}\}$ (VIII, 369).

7) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p\,Sin^2\,x}\,dx = \frac{1}{4p}\,F'(p).l\left\{\frac{2}{(1-p)\sqrt{p}}\right\} - \frac{\pi}{16p}\,F'\{\sqrt{1-p^2}\}$ (VIII, 369).

8) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2\,Sin^4\,x}\,dx = \frac{1}{8p}\,F'(p).\,l\frac{1+p}{1-p}$ (VIII, 369).

9) $\int F(p,x) \frac{Sin^3\,x\,.\,Cos\,x}{1-p^2\,Sin^4\,x}\,dx = \frac{1}{8p^2}\,F'(p).\,l\left\{\frac{4}{(1-p^2)p}\right\} - \frac{\pi}{16p^2}\,F'\{\sqrt{1-p^2}\}$ (VIII, 369).

10) $\int E(p,x) \frac{dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{1}{2}\,E'(p).F'(p) - \frac{1}{4}\,l(1-p^2)$ (IV, 482).

11) $\int \Upsilon(p,x) \frac{dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{\pi}{12}\,F'\{\sqrt{1-p^2}\} + \frac{1}{6}\,E'(p).\{F'(p)\}^2 + \frac{1}{6}\,F'(p).\,l\left\{\frac{p}{4(1-p^2)}\right\}$ (VIII, 267).

12) $\int F(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2\,Sin^2\,\lambda\,.\,Sin^2\,x}\,\frac{dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{-1}{p^2\,Sin\,\lambda\,.\,Cos\,\lambda}\left\{F'(p).Arctg\{Tg\,\lambda\,.\sqrt{1-p^2}\} - \frac{\pi}{2}\,F(p,\lambda)\right\}$ (VIII, 370).

13) $\int E(p,x) \frac{Sin\,x\,.\,Cos\,x}{1-p^2\,Sin^2\,\lambda\,.\,Sin^2\,x}\,\frac{dx}{\sqrt{1-p^2\,Sin^2\,x}} = \frac{-1}{p^2\,Sin\,\lambda\,.\,Cos\,\lambda}\left\{E'(p).Arctg\{Tg\,\lambda\,.\sqrt{1-p^2}\} - \frac{\pi}{2}\,E(p,\lambda) + \frac{\pi}{2}\,Cot\,\lambda.\{1-\sqrt{1-p^2\,Sin^2\,\lambda}\}\right\}$ (VIII, 370).

F. Circul. Directe; Autre Fonction. TABLE 351. Lim. diverses.

1) $\int_0^1 B'(x)\,.\,Sin\,2\,c\,\pi\,x\,dx = 0$ (IV, 483).

2) $\int_0^1 B''(x)\,.\,Cos\,2\,c\,\pi\,x\,dx = 0$ (IV, 483).

3) $\int_0^1 B'(x).Cos\,2\,c\,\pi\,x\,dx = \frac{(-1)^a}{(2\pi)^{2a+2}}\,\frac{1^{2a+1/1}}{c^{2a+2}}$ (IV, 483).

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4) $\int_0^1 B''(x) \, . \, Sin\, 2\, c\, \pi\, x\, dx = \frac{(-1)^{a-1}}{(2\,\pi)^{2a+1}} \, \frac{1^{2a/1}}{c^{2a+1}}$ (IV, 483).

5) $\int_0^\infty \left\{ \frac{1}{\binom{p-xi}{a}} - \frac{1}{\binom{p+xi}{a}} \right\} Sin\, q\, x\, dx = (-1)^a\, a\, i\, \pi\, e^{-pq} (1-e^q)^{a-1}$

6) $\int_0^\infty \left\{ \frac{1}{\binom{p-xi}{a}} + \frac{1}{\binom{p+xi}{a}} \right\} Cos\, q\, x\, dx = (-1)^{a-1}\, a\, \pi\, e^{-pq} (1-e^q)^{a-1}$

Sur 5) et 6) voyez Raabe, Dsch. Zür. 8, 1.

7) $\int_0^\pi \Upsilon(p,x) \frac{dx}{\sqrt{1-p^2\, Sin^2 x}} = \frac{\pi}{6} F' \{ \sqrt{1-p^2} \} + \frac{4}{3} E'(p) \, . \, \{F'(p)\}^2 + \frac{1}{3} F'(p) . l \left\{ \frac{p}{4(1-p^2)} \right\}$ (VIII, 267).

8) $\int_0^{Arcsin\, p} E'(Sin\, x) \frac{Tg\, x}{\sqrt{p^2 - Sin^2 x}} dx = \frac{p\, \pi}{2\sqrt{1-p^2}}$ $[p^2 < 1]$ V. T. 255, N. 11.

9) $\int_\lambda^\mu F(p,x) \frac{dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2\, Cos\, \lambda \, . \, Sin\, \mu} F'(p) \, . \, F' \{ \sqrt{1 - Tg^2 \lambda \, . \, Cot^2 \mu} \}$ $[p < 1]$ (VIII, 425).

10) $\int_\lambda^\mu E(p,x) \frac{dx}{\sqrt{(Sin^2 x - Sin^2 \lambda)(Sin^2 \mu - Sin^2 x)}} = \frac{1}{2\, Cos\, \lambda \, . \, Sin\, \mu} E'(p) \, . \, F' \left\{ \sqrt{\left(1 - \frac{Tg^2 \lambda}{Tg^2 \mu}\right)} \right\} + \frac{p^2\, Sin\, \mu}{2\, Cos\, \lambda} F' \left\{ \sqrt{1 - \frac{Sin^2 2\lambda}{Sin^2 2\mu}} \right\}$ $[p < 1]$

Dans 9) et 10) on a $p^2 = 1 - Cot^2 \lambda \, . \, Cot^2 \mu$ (VIII, 427).

PARTIE QUATRIÈME.

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F. Algébrique; Exponentielle; Logarithmique.	TABLE 352.	Lim. 0 et 1.

1) $\int e^{-x}\, lx . (1-x)\, dx = \frac{1-e}{e}$ (VIII, 592).

2) $\int e^{qx}\, lx . (qx+2) x\, dx = \frac{1}{q^2} \{(1-q) e^q - 1\}$ V. T. 80, N. 1.

3) $\int e^{-x^2}\, lx . (1-x^2) x\, dx = \frac{1-e}{4e}$ (VIII, 592).

4) $\int e^{-(1-x)^2}\, l(1-x) . (2-x)(1-x) x\, dx = \frac{1-e}{4e}$ V. T. 352, N. 3.

5) $\int e^{x-1}\, l(1-x) . x\, dx = \frac{1-e}{e}$ (VIII, 592).

6) $\int e^x\, lx \frac{x^2+x+2}{(x+1)^3} x\, dx = \frac{2-e}{2}$ V. T. 80, N. 6.

7) $\int x^{rx} \left(l\frac{1}{x}\right)^{q-1} . x^{p-1}\, dx = \Gamma(q) \sum_0^\infty \frac{r^n}{1^{n/1}} \frac{q^{n/1}}{(p+n)^{q+n}}$ (VIII, 515).

8) $\int \frac{x e^{qx}}{(e^{qx}-1)^{\frac{3}{2}} (e^q - e^{-qx})^{\frac{1}{2}}} l\left(p \frac{e^q - e^{-qx}}{e^{qx}-1}\right) . dx = \frac{4\pi}{q} \left\{\frac{1-(1+q) e^{\frac{1}{2}q}}{1-e^q} + \frac{1}{1+e^{\frac{1}{2}p}} lp\right\}$ V. T. 33, N. 1.

9) $\int e^{rx} \frac{x^{p-1} - x^{q-1}}{lx} dx = l\frac{p}{q} + \sum_1^\infty \frac{r^n}{1^{n/1}} l\frac{p+n}{q+n}$ (VIII, 491).

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1) $\int e^{-qx} lx . x^{p-1} dx = \frac{1}{q^p} \Gamma(p) . \{Z'(p) - lq\}$ (VIII, 363).

2) $\int e^{-qx} lx . (qx - p) x^{p-1} dx = \frac{1}{q^p} \Gamma(p)$ V. T. 81, N. 1.

3) $\int e^{-x^q} lx . (qx^q - p) x^{p-1} dx = \frac{1}{q} \Gamma\left(\frac{p}{q}\right)$ V. T. 81, N. 8.

4) $\int e^{-px^2} lx . (px^2 - a) x^{2a-1} dx = \frac{1}{4p^a} 1^{a-1/1}$ V. T. 81, N. 7.

5) $\int e^{-px^2} lx . (2px^2 - 2a - 1) x^{2a} dx = \frac{1}{2} \frac{1^{a/2}}{(2p)^a} \sqrt{\frac{\pi}{p}}$ V. T. 81, N. 6.

6) $$\int e^{-px} l(q+x) . x^a dx = \frac{1}{p^{a+1}} \Big[1^{a/1} \{lq - e^{pq} Ei(-pq)\} + \{1 + pq e^{pq} Ei(-pq)\}$$
$$2^{a-1/1} \sum_0^{a-1} 2^{n/1} (-pq)^n + 3^{a-2/1} \sum_0^{a-2} \frac{(pq)^n}{3^{n/1}} \sum_0^n \frac{1^{m+1/1}}{(-pq)^m} \Big]$$ (IV, 488).

7) $$\int e^{-px} l(q-x)^2 . x^a dx = \frac{1}{p^{a+1}} \Big[1^{a/1} \{lq^2 - 2e^{-pq} Ei(pq)\} + 2\{1 - pq e^{-pq} Ei(pq)\}$$
$$2^{a-1/1} \sum_0^{a-1} 2^{n/1} (pq)^n + 2 . 3^{a-2/1} \sum_0^{a-2} \frac{(-pq)^n}{3^{n/1}} \sum_0^n \frac{1^{m+1/1}}{(pq)^m} \Big]$$ (IV, 488).

8) $$\int e^{-px} l(q^2 + x^2) . x^{2a} dx = \frac{1}{p^{2a+1}} \Big[1^{2a/1} lq^2 - 1^{2a/1} \{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq -$$
$$- \pi\, Sin\, pq\} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} + 1^{2a/1} \{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq\} \sum_0^a \frac{(pq)^{2n-1}}{1^{2n-1/1}} +$$
$$+ 2^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m + 3^{2a-2/1} \sum_1^a \frac{1}{1^{2n-1/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (-p^2q^2)^m \Big]$$
(IV, 488).

9) $$\int e^{-px} l(q^2 + x^2) . x^{2a+1} dx = \frac{1}{p^{2a+2}} \Big[1^{2a+1/1} lq^2 - 1^{2a+1/1} \{2\, Ci(pq) . Cos\, pq + 2\, Si(pq) . Sin\, pq -$$
$$- \pi\, Sin\, pq\} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} + 1^{2a+1/1} \{2\, Ci(pq) . Sin\, pq - 2\, Si(pq) . Cos\, pq + \pi\, Cos\, pq\} \sum_1^{a+1} \frac{(pq)^{2n-1}}{1^{2n-1/1}} +$$
$$+ 2^{2a/1} \sum_1^{a+1} \frac{1}{1^{2n+1/1}} \sum_0^{n-1} 1^{2n-2m+1/1} (-p^2q^2)^m + 3^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \Big]$$
(IV, 488).

10) $$\int e^{-px} l(q^2 - x^2)^2 . x^{2a} dx = \frac{2}{p^{2a+1}} \Big[1^{2a/1} lq^2 - 1^{2a/1} e^{pq} Ei(-pq) \sum_0^{2a-1} \frac{(-pq)^n}{1^{n/1}} -$$
$$- 1^{2a/1} e^{-pq} Ei(pq) \sum_0^{2a} \frac{(pq)^n}{1^{n/1}} + 2^{2a-1/1} \sum_1^a \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (p^2q^2)^m +$$
$$+ 3^{2a-2/1} \sum_0^a \frac{1}{1^{2n-1/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (p^2q^2)^m \Big]$$ V. T. 353, N. 6, 7.

11) $\int e^{-px}\, l(q^2-x^2)^2 . x^{2a+1}\, dx = \frac{2}{p^{2a+2}}\Big[1^{2a+1/1}\, lq^2 - 1^{2a+1/1}\, e^{pq}\, Ei(-pq)\sum_0^{2a}\frac{(-pq)^n}{1^{n/1}} -$
$- 1^{2a+1/1}\, e^{-pq}\, Ei(pq)\sum_0^{2a}\frac{(pq)^n}{1^{n/1}} + 2^{2a/1}\sum_1^{a+1}\frac{1}{1^{2n+1/1}}\sum_0^{n-1} 1^{2n-2m+1/1}(p^2q^2)^m +$
$+ 3^{2a-1/1}\sum_1^{a}\frac{1}{1^{2n/1}}\sum_0^{n-1} 1^{2n-2m/1}(p^2q^2)^m\Big]$ V. T. 353, N. 6, 7.

12) $\int e^{-px}\, l(q^4-x^4)^2 . x\,dx = 8 + 4\, lq^2 + 2(pq-1)e^{pq}\, Ei(-pq) + 2(pq+1)e^{-pq}\, Ei(pq) -$
$- 2pq\{2\, Ci(pq).Sin pq - 2\, Si(pq).Cos pq + \pi\, Cos pq\} - 2\{2\, Ci(pq).Cos pq +$
$+ 2\, Si(pq).Sin pq - \pi\, Sin pq\}$ V. T. 353, N. 9, 11.

13) $\int e^{-px}\, l(q^4-x^4)^2 . x^2\,dx = 24 + 8\, lq^2 - 2(p^2q^2 - 2pq + 2)e^{pq}\, Ei(-pq) - 2(p^2q^2 + 2pq + 2)$
$e^{-pq}\, Ei(pq) - 4pq\{2\, Ci(pq).Sin pq - 2\, Si(pq).Cos pq + \pi\, Cos pq\} +$
$+ 2(p^2q^2 - 2)\{2\, Ci(pq).Cos pq + 2\, Si(pq).Sin pq - \pi\, Sin pq\}$ V. T. 353, N. 8, 10.

14) $\int e^{-px}\, l(q^4-x^4)^2 . x^3\,dx = 88 + 24\, lq^2 + 2(p^3q^3 - 3p^2q^2 + 6pq - 6)e^{pq}\, Ei(-pq) -$
$- 2(p^3q^3 + 3p^2q^2 + 6pq + 6)e^{-pq}\, Ei(pq) + 2(p^2q^2 - 6)pq\{2\, Ci(pq).Sin pq -$
$- 2\, Si(pq).Cos pq + \pi\, Cos pq\} + 2(p^2q^2 - 6)\{2\, Ci(pq).Cos pq + 2\, Si(pq).Sin pq -$
$- \pi\, Sin pq\}$ V. T. 353, N. 9, 11.

F. Alg. fract. à dén. mon. et bin.;
Expon. monôme;
Logarithmique.

TABLE 354.

Lim. 0 et ∞.

1) $\int\frac{dx}{x}\, l\left\{\frac{s + re^{-qx}}{s + re^{-px}}\right\} = l\left\{\frac{s}{s+r}\right\} . l\frac{q}{p}$ (VIII, 280).

2) $\int l(1+x^2) . e^{-px}\frac{dx}{x} = \{Ci(p)\}^2 + \left\{\frac{\pi}{2} - Si(p)\right\}^2$ Enneper, Schl. Z. 6, 405.

3) $\int e^{-q^2x^2 - \frac{p^2}{x^2}}\, lx\, \frac{2q^2x^4 + x^2 - 2p^2}{x^4}\, dx = \frac{1}{2p}e^{-2pq}\sqrt{\pi}$ V. T. 89, N. 1.

4) $\int e^{-px}\, l(q+x)\frac{p(x+q)\, l(q+x) - 2}{x+q}\, dx = (lq)^2$ (IV, 489).

5) $\int e^{-px}\, l(q-x)^2\frac{p(x-q)\, l(q-x)^2 - 4}{x-q}\, dx = (lq^2)^2$ (IV, 489).

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6) $\int l(1-e^{-2\pi q x})\frac{dx}{1+x^2}=\pi\left\{\frac{1}{2}l2q\pi-l\Gamma(q+1)+q(lq-1)\right\}$ (IV, 489).

7) $\int l(1+e^{-2\pi q x})\frac{dx}{1+x^2}=\pi\left\{l\Gamma(2q)-l\Gamma(q)+q(1-lq)-\left(2q-\frac{1}{2}\right)l2\right\}$

Winckler, Sitz. Ber. Wien. 43, 315.

8) $\int e^{-px}l(q^2+x^2)\frac{p(x^2+q^2)l(q^2+x^2)-4}{x^2+q^2}dx=(lq^2)^2$ (IV, 489).

9) $\int e^{-px}l(q^2-x^2)^2\frac{p(x^2-q^2)l(q^2-x^2)^2-8}{x^2-q^2}dx=(lq^4)^2$ (IV, 489).

10) $\int l\left\{\frac{(x+p)(x+q)}{pq}\right\}\frac{e^{-x}}{x+p+q}dx=e^{p+q}\,li(e^{-p}).li(e^{-q})$

11) $\int l\{(x+p)(x+q)\}\frac{e^{-rx}}{x+p+q}dx=e^{(p+q)r}[li(e^{-pr}).li(e^{-qr})-lpq.li\{e^{-(p+q)r}\}]$

12) $\int l(x+p+q).e^{-rx}\left(\frac{1}{x+p}-\frac{1}{x+q}\right)dx=(1+lp.lq).l(p+q)+e^{-(p+q)r}\{li(e^{-pr}).li(e^{-qr})+$
$+(1-lpq).li(e^{-(p+q)r})\}$ Sur 9) à 11) voyez Winckler, Cr. 50, 1.

13) $\int\left\{e^{-x}-\frac{(1+x)^{-p}}{l(1+x)}\right\}\frac{dx}{x}=l(p-1)$ (IV, 490).

14) $\int\left\{\frac{e^{-x}}{x}-\frac{1}{(1+x)^2\,l(1+x)}\right\}dx=0$ (VIII, 586).

15) $\int\left\{e^{-x}-\frac{x}{(1+x)^{p+1}\,l(1+x)}\right\}\frac{dx}{x}=lp$ Winckler, Sitz. Ber. Wien. 21, 389.

16) $\int\left\{(p-1)e^{-x}+\frac{(1+x)^{-p}-(1+x)^{-1}}{l(1+x)}\right\}\frac{dx}{x}=l\Gamma(p)$ (VIII, 586).

F. Alg. fract. à dén. puiss. de bin.;
Expon. monôme; TABLE 355. Lim. 0 et ∞.
Logarithmique.

1) $\int e^{-px}l(q+x)\frac{px+pq+1}{(x+q)^2}dx=pe^{pq}Ei(-pq)+\frac{1}{q}(1+lq)$ V. T. 355, N. 14.

2) $\int e^{-px}l(q-x)^2\frac{px-pq+1}{(x-q)^2}dx=2pe^{-pq}Ei(pq)-\frac{1}{q}(2+lq^2)$ V. T. 355, N. 15.

3) $\int e^{-px}\, l(q+x)\frac{px-pq+1}{(x-q)^2}\,dx = \frac{1}{2q}\left\{e^{pq}\,Ei(-pq)-e^{-pq}\,Ei(pq)-lq^2\right\}$ (IV, 490).

4) $\int e^{-px}\, l(q-x)^2\frac{px+pq+1}{(x+q)^2}\,dx = \frac{1}{q}\left\{e^{pq}\,Ei(-pq)-e^{-pq}\,Ei(pq)+lq^2\right\}$ (IV, 490).

5) $\int e^{-px}\, l(q^2-x^2)^2\frac{px+pq+1}{(x+q)^2}\,dx = \frac{1}{q}\left\{(2pq+1)e^{pq}\,Ei(-pq)-e^{-pq}\,Ei(pq)+2\,lq^2+2\right\}$

V. T. 355, N. 1, 4.

6) $\int e^{-px}\, l(q^2-x^2)^2\frac{px-pq+1}{(x-q)^2}\,dx = \frac{1}{q}\left\{e^{pq}\,Ei(-pq)+(2pq-1)e^{-pq}\,Ei(pq)-2\,lq^2-2\right\}$

V. T. 355, N. 2, 3.

7) $\int e^{-px}l(q+x)\frac{px^2-(pq+2a-1)x+2aq}{(x-q)^2}x^{2a-1}\,dx = \frac{1}{2}q^{2a-1}\left\{e^{pq}Ei(-pq)-e^{-pq}Ei(pq)\right\}+$

$+\frac{1}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(p^2q^2)^{n-1}$ (IV, 491).

8) $\int e^{-px}l(q+x)\frac{px^2-(pq+2a)x+(2a+1)q}{(x-q)^2}x^{2a}dx = -\frac{1}{2}q^{2a}\left\{e^{pq}\,Ei(-pq)+e^{-pq}Ei(pq)\right\}+$

$+\frac{1}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(p^2q^2)^{n-1}$ (IV, 491).

9) $\int e^{-px}l(q-x)^2\frac{px^2+(pq-2a+1)x-2aq}{(x+q)^2}x^{2a-1}dx = q^{2a-1}\left\{e^{pq}Ei(-pq)-e^{-pq}Ei(pq)\right\}+$

$+\frac{2}{p^{2a-1}}\sum_1^a 1^{2a-2n/1}(p^2q^2)^{n-1}$ (IV, 491).

10) $\int e^{-px}l(q-x)^2\frac{px^2+(pq-2a)x-(2a+1)q}{(x+q)^2}x^{2a}dx = -q^{2a}\left\{e^{pq}\,Ei(-pq)+e^{-pq}Ei(pq)\right\}+$

$+\frac{2}{p^{2a}}\sum_1^a 1^{2a-2n+1/1}(p^2q^2)^{n-1}$ (IV, 491).

11) $\int e^{-px}\, l(q+x)\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{4q^2}\left\{2-4\,lq^2-(2pq-1)\,e^{pq}\,Ei(-pq)-e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 1, 3.

12) $\int e^{-px}l(q-x)^2\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{2q^2}\left\{2-4\,lq^2-e^{pq}Ei(-pq)+(2pq+1)e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 2, 4.

13) $\int e^{-px}\, l(q^2-x^2)^2\frac{px^2+2x-pq^2}{(x^2-q^2)^2}\,dx = \frac{1}{q^2}\left\{2-4\,lq^2-pq\,e^{pq}\,Ei(-pq)+pq\,e^{-pq}\,Ei(pq)\right\}$

V. T. 355, N. 11, 12.

F. Alg. fract. à dén. puiss. de bin.; Expon. monôme; Logarithmique. — TABLE 355, suite. — Lim. 0 et ∞.

14) $\int e^{-px}\, l(q+x) \frac{px+pq+a-1}{(x+q)^a}\, dx = \frac{lq}{q^{a-1}} + \frac{(-p)^a}{1^{a-1/1}p} e^{pq}\, Ei(-pq) + \frac{1}{1^{a-1/1} q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1} (-pq)^{n-1}$ (IV, 490).

15) $\int e^{-px}\, l(q-x)^2 \frac{px-pq+a-1}{(x-q)^a}\, dx = (-1)^{a-1} \left\{ \frac{1}{q^{a-1}} lq^2 - 2\frac{p^{a-1}}{1^{a-1/1}} e^{-pq}\, Ei(pq) + \frac{2}{1^{a-1/1} q^{a-1}} \sum_1^{a-1} 1^{a-n-1/1} (pq)^{n-1} \right\}$ (IV, 490).

F. Algébr. rat.; Expon. en dén. polynôme; Logarithmique. — TABLE 356. — Lim. 0 et ∞.

1) $\int lx \frac{(px-q)e^{px}-q}{(e^{px}+1)^2} x^{q-1}\, dx = \frac{1}{p^q} \Gamma(q) \sum_0^\infty \frac{(-1)^n}{(n+1)^q}$ V. T. 83, N. 6.

2) $\int lx \frac{(2qx-2a-1)e^{qx}-(2qx+2a+1)e^{-qx}}{(e^{qx}+e^{-qx})^3} x^{2a}\, dx = \frac{2^{2a-1}-1}{(2q)^{2a+1}} \pi^{2a} \mathrm{B}_{2a-1}$ V. T. 86, N. 2.

3) $\int lx \frac{(qx-p)(1+e^x)+xe^x}{(1+e^x)^2} e^{-qx} x^{p-1}\, dx = \Gamma(p) \sum_1^\infty \frac{(-1)^{n-1}}{(q+n)^p}$ V. T. 83, N. 9.

4) $\int lx \frac{(qx-2a)e^{qx}-2a}{(e^{qx}+1)^2} x^{2a-1}\, dx = \frac{2^{2a-1}-1}{2a} \mathrm{B}_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 83, N. 2.

5) $\int lx \frac{(px-q)e^{px}+q}{(e^{px}-1)^2} x^{q-1}\, dx = \frac{1}{p^q} \Gamma(q) \sum_0^\infty \frac{1}{(n+1)^q}$ V. T. 83, N. 7.

6) $\int lx \frac{(2qx-2a-1)e^{qx}+(2qx+2a+1)e^{-qx}}{(e^{qx}-e^{-qx})^3} x^{2a}\, dx = \frac{1}{4q^{2a+1}} \pi^{2a} \mathrm{B}_{2a-1}$ V. T. 86, N. 5.

7) $\int lx \frac{(qx-p)(e^x-1)+xe^x}{(e^x-1)^2} e^{-qx} x^{p-1}\, dx = \Gamma(p) \sum_1^\infty \frac{1}{(q+n)^p}$ V. T. 83, N. 10.

8) $\int lx \frac{qxe^{qx}-2a(e^{2qx}-1)}{(e^{qx}-1)^2} x^{2a-1}\, dx = \frac{1}{a} 2^{2a-2} \mathrm{B}_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 83, N. 4.

9) $\int lx \frac{ae^{2qx}-qxe^{qx}-a}{(e^{qx}-1)^2} x^{2a-1}\, dx = -\frac{1}{a} 2^{2a-1} \left(\frac{\pi}{q}\right)^{2a} \mathrm{B}_{2a-1}$ V. T. 83, N. 11.

10) $\int lx \frac{(q+1)(e^x+e^{-x})-x(e^x-e^{-x})}{(e^x+e^{-x})^2} x^q\, dx = \Gamma(q+1) \sum_0^\infty \frac{(-1)^{n+1}}{(2n+1)^{q+1}}$ V. T. 84, N. 11.

11) $\int lx \frac{(2a+1)(e^{qx}+e^{-qx}) - qx(e^{qx}-e^{-qx})}{(e^{qx}+e^{-qx})^2} x^{2a} dx = -\frac{1}{2}\left(\frac{\pi}{2q}\right)^{2a+1} B_{2a}$ V. T. 84, N. 12.

12) $\int l(1+x^2) \frac{e^{\pi x}(1+\pi x)+e^{-\pi x}(1-\pi x)}{(e^{\pi x}+e^{-\pi x})^2} \frac{dx}{x^2} = 2 - \frac{1}{2}\pi$ V. T. 97, N. 1.

13) $\int l(1+4x^2) \frac{e^{\pi x}(1+\pi x)+e^{-\pi x}(1-\pi x)}{(e^{\pi x}+e^{-\pi x})^2} \frac{dx}{x^2} = 2\,l2$ V. T. 97, N. 2.

14) $\int lx \frac{(qx-2a-1)e^{qx}+(qx+2a+1)e^{-qx}}{(e^{qx}-e^{-qx})^2} x^{2a} dx = \frac{2^{2a+1}-1}{(2q)^{2a+1}} 1^{2a/1} \sum_1^\infty \frac{1}{n^{2a+1}}$

V. T. 84, N. 13.

15) $\int lx \frac{(qx-2a)e^{qx}+(qx+2a)e^{-qx}}{(e^{qx}-e^{-qx})^2} x^{2a-1} dx = \frac{2^{2a}-1}{4a} B_{2a-1} \left(\frac{\pi}{q}\right)^{2a}$ V. T. 84, N. 14.

16) $\int lx \frac{x(e^x-e^{-x}) - 3(e^{\frac{1}{2}x}-e^{-\frac{1}{2}x})^2 - 12\, Cos^2 \frac{1}{2}\lambda}{(e^x+e^{-x}+2\, Cos\,\lambda)^2} x^2 dx = \frac{\lambda}{2\, Sin\,\lambda} \frac{\pi^2-\lambda^2}{3}$ V. T. 88, N. 3.

17) $\int lx \frac{q(e^x+e^{-x}+2\, Cos\,\lambda) - x(e^x-e^{-x})}{(e^x+e^{-x}+2\, Cos\,\lambda)^2} x^{q-1} dx = \frac{\Gamma(q)}{Sin\,\lambda} \sum_1^\infty (-1)^n \frac{Sin\, n\lambda}{n^q}$ V. T. 96, N. 4.

18) $\int lx \frac{x(e^x-e^{-x}) - 2(e^{\frac{1}{2}x}-e^{-\frac{1}{2}x})^2}{(e^x+e^x-1)^2} x\,dx = \frac{4}{27}\pi^2$ V. T. 88, N. 1.

19) $\int lx \frac{(x-2)e^{2x}+2}{\sqrt{e^{2x}-1}^3} x\,dx = \frac{\pi}{2}\, l2$ V. T. 99, N. 4.

20) $\int lx \frac{2(x-1)e^x+(2-x)e^{-x}}{\sqrt{e^{2x}-1}^3} x\,dx = 1 - l2$ V. T. 99, N. 8.

21) $\int \frac{e^{px}+e^{-px}}{e^{\pi x}+e^{-\pi x}} \frac{lx}{x^q} dx = Z'(1-q).\Gamma(1-q) \sum_0^\infty (-1)^n \left\{\frac{1}{\{(2n+1)\pi-p\}^{1-q}} + \frac{1}{\{(2n+1)\pi+p\}^{1-q}}\right\} -$

$- \Gamma(1-q) \sum_0^\infty (-1)^n \left\{\frac{l\{(2n+1)\pi-p\}}{\{(2n+1)\pi-p\}^{1-q}} + \frac{l\{(2n+1)\pi+p\}}{\{(2n+1)\pi+p\}^{1-q}}\right\}$ (VIII, 567).

22) $\int \frac{e^{px}-e^{-px}}{e^{\pi x}-e^{-\pi x}} \frac{lx}{x^q} dx = Z'(1-q).\Gamma(1-q) \sum_0^\infty \left\{\frac{1}{\{(2n+1)\pi-p\}^{1-q}} - \frac{1}{\{(2n+1)\pi+p\}^{1-q}}\right\} -$

$- \Gamma(1-q) \sum_0^\infty \left\{\frac{l\{(2n+1)\pi-p\}}{\{(2n+1)\pi-p\}^{1-q}} - \frac{l\{(2n+1)\pi+p\}}{\{(2n+1)\pi+p\}^{1-q}}\right\}$ (VIII, 567).

1) $\int e^{-qx} lx . dx \sqrt{x} = \frac{1}{2q}(2 - lq - 2\,l2 - A)\sqrt{\frac{\pi}{q}}$ (VIII, 363).

2) $\int e^{-qx}\left(qx - a - \frac{1}{2}\right) lx . x^{a-\frac{1}{2}}\, dx = \frac{1^{a/2}}{(2q)^a}\sqrt{\frac{\pi}{q}}$ V. T. 98, N. 2.

3) $\int e^{-qx} lx . x\, dx = \frac{1}{4q}(10 - 3\,lq - 6\,l2 - A)\sqrt{\frac{\pi}{q}}$ V. T. 357, N. 1, 2.

4) $\int e^{-\left(px+\frac{q}{x}\right)} lx . \{2px^2 - (2c+1)x - 2q\}\, x^{c-\frac{3}{2}}\, dx = 2\left(\frac{q}{p}\right)^{\frac{1}{2}c} e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{p}} . \sum_0^\infty \frac{(c-n+1)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$ V. T. 98, N. 5.

5) $\int e^{-qx} lx \frac{dx}{\sqrt{x}} = -(lq + 2\,l2 + A)\sqrt{\frac{\pi}{q}}$ (VIII, 363).

6) $\int e^{-q^2x-\frac{p^2}{x}} lx \frac{2q^2x^2 - 3x - 2p^2}{\sqrt{x}}\, dx = \frac{1+2pq}{2q^3} e^{-2pq}\sqrt{\pi}$ V. T. 98, N. 4.

7) $\int e^{-q^2x-\frac{p^2}{x}} lx \frac{2q^2x^2 - x - 2p^2}{x\sqrt{x}}\, dx = \frac{2}{q} e^{-2pq}\sqrt{\pi}$ V. T. 98, N. 15.

8) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{1+qx-x^2}{x\sqrt{x}}\, dx = -\frac{\sqrt{2q\pi}}{\sqrt[q]{e}} 2q$ V. T. 98, N. 12.

9) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{x^2+qx-1}{x^2\sqrt{x}}\, dx = \frac{2q}{\sqrt[q]{e}}\sqrt{2q\pi}$ V. T. 98, N. 13.

10) $\int e^{-\frac{1+x^2}{2qx}} lx \frac{x^2+3qx-1}{x^3\sqrt{x}}\, dx = \frac{1+q}{\sqrt[q]{e}} 2q\sqrt{2q\pi}$ V. T. 98, N. 14.

11) $\int e^{-px-\frac{q}{x}} lx \frac{2px^2 + (2a-1)x - 2q}{x^{a+\frac{3}{2}}}\, dx = 2\left(\frac{p}{q}\right)^{\frac{1}{2}a} e^{-2\sqrt{pq}}\sqrt{\frac{\pi}{q}} . \sum_0^\infty \frac{(a-n)^{2n/1}}{2^{n/2}(2\sqrt{pq})^n}$ V. T. 98, N. 17.

12) $\int \frac{lx}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = \sqrt{\pi} . \sum_0^\infty (-1)^{n+1} \frac{l(2n+1) + 2\,l2 + A}{\sqrt{2n+1}}$ (VIII, 487).

13) $\int \frac{lx}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = Cosec\,\frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty \left\{(-1)^n\, Sin\,\frac{1}{3}n\pi . \frac{ln + 2\,l2 + A}{\sqrt{n}}\right\}$ (VIII, 487).

14) $\int lx \frac{(2x-1)e^x - (2x+1)e^{-x}}{(e^x + e^{-x})^3} \frac{dx}{\sqrt{x}} = 2\sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{\sqrt{2n+1}}$ V. T. 98, N. 8.

15) $\int lx \frac{(2x-1)e^x - (2x+1)e^{-x} - 1}{(e^x + 1 + e^{-x})^2} \frac{dx}{\sqrt{x}} = 2\, Cosec\,\frac{\pi}{3} . \sqrt{\pi} . \sum_1^\infty (-1)^{n-1} \frac{Sin\,\frac{1}{3}n\pi}{\sqrt{n}}$ V. T. 98, N. 9.

1) $\int e^{-px^2+2qx}\, lx.(px^2-qx-1)\,x\,dx = \frac{q}{2p} e^{\frac{q^2}{p}} \sqrt{\frac{\pi}{p}}$ V. T. 100, N. 7.

2) $\int l(e^{px}+e^{-px}).x\,dx = 0$ (VIII, 273).

3) $\int \frac{1-e^{pxi}}{l(q-xi)} \frac{dx}{x} = \frac{2\pi i}{1-q}\{1-e^{p(q-1)}\}[q<1], = 0\,[q>1], = \pi p i [q=1]$ (VIII, 674).

4) $\int (-xi)^{p-1} e^{qxi} \frac{l\left(1+\frac{si}{x}\right)}{l\left(1+\frac{ri}{x}\right)} dx = 2\pi(1-s)^{p-1} e^{q(r-s)}\, l\frac{1-r}{1-r+s}\,[r<1]$

5) $\int \frac{e^{pxi}-e^{qxi}}{xi} \frac{dx}{l(1-xi)} = \pi(q-p)$

6) $\int \frac{e^{pxi}-e^{qxi}}{xi} \frac{dx}{l(r-xi)} = \frac{2\pi}{1-r}\{e^{p(r-1)}-e^{q(r-1)}\}\,[r<1], = 0\,[r>1]$

Sur 4) à 6) voyez Cauchy, Ann. Math. 17, 84.

7) $\int e^{sxi}(-xi)^{q-1}\, l\left(1+\frac{ri}{x}\right)\frac{dx}{p-xi} = 0$ (IV, 495).

8) $\int e^{sxi}(-xi)^{q-1}\, l\left(1+\frac{ri}{x}\right)\frac{dx}{p+xi} = 2\pi p^{q-1} e^{-ps}\, l\left(1+\frac{r}{p}\right)$ (IV, 495).

9) $\int e^{pxi}\, l(q+xi)\frac{dx}{(q+xi)^a} = \frac{2\pi}{1^{a/1}} p^{a-1} e^{-pq}\{Z'(a)-lp\}$ (IV, 495).

10) $\int e^{pxi}\, l(q-xi)\frac{dx}{(q-xi)^a} = 0$ (IV, 495).

11) $\int \frac{e^{-pxi}}{l(1+xi)} \frac{dx}{r^2+x^2} = \frac{\pi e^{-pr}}{r\,l(1+r)} - \frac{\pi}{r^2}$ (IV, 495).

12) $\int \frac{e^{-pxi}}{l(1+xi)}(xi)^q \frac{dx}{r^2+x^2} = \frac{\pi r^{q-1} e^{-pr}}{l(1+r)}$ (IV, 495).

13) $\int \frac{e^{qxi}}{l(1-pxi)}(-xi)\frac{dx}{1+x^2} = \frac{\pi e^{-q}}{l(1+p)}$ (IV, 495).

14) $\int \frac{e^{-axi}}{\{l(k+xi)\}^m} \frac{1}{(f+xi)^p(g+xi)^q\dots} \frac{dx}{b^2+x^2} = \frac{\pi}{b} e^{-ab} \frac{1}{(b+f)^p(b+g)^q\dots} \frac{1}{\{l(b+k)\}^m}$

(VIII, 610).

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F. Algébrique;
Exponentielle; TABLE 358, suite. Lim. $-\infty$ et ∞.
Logarithmique.

15) $\int \frac{e^{-axi}}{\{l(k+xi)\}^m\{l(h+xi)\}^n\ldots} \frac{1}{(f+xi)^p(g+xi)^q\ldots} \frac{dx}{b^2+x^2} = \frac{\pi}{b} e^{-ab} \frac{1}{(b+f)^p(b+g)^q\ldots} \frac{1}{\{l(b+k)\}^m\{l(b+h)\}^n\ldots}$ (VIII, 610).

F. Algébrique;
Exponentielle; TABLE 359. Lim. 1 et ∞.
Logarithmique.

1) $\int e^{-2qx} l(2x-1) \frac{dx}{x} = \frac{1}{2}\{li(e^{-q})\}^2$ (IV, 496).

2) $\int \frac{e^{-2qx} lx}{2x-1}\{q(2x-1)l(2x-1)-1\}dx = \frac{1}{4}\{li(e^{-q})\}^2$ V. T. 359, N. 1.

3) $\int_0^{l\frac{p^2}{q^2}} l\left\{\frac{p^2-q^2e^x}{e^x-1}\right\} \frac{xe^{-x}}{\sqrt{\frac{p^2-q^2e^x}{e^x-1}}} \frac{dx}{(1-e^{-x})^2} = -\frac{4\pi}{p+q} + \frac{4\pi}{p^2-q^2} l\frac{p^p}{q^q}$ V. T. 33, N. 1.

F. Algébrique;
Exponentielle; Intégr. Lim. (Lim. $k=\infty$.) TABLE 360. Lim. 0 et ∞.
Logarithmique.

1) $\int \frac{e^{-kx} lx}{e^x+e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 317).

2) $\int \frac{e^{-kx} lx}{e^x+e^{-x}+1} \frac{dx}{\sqrt{x}} = 0$ (VIII, 317).

F. Algébr. rat. ent.;
Expon. $e^{\pm ax}$; TABLE 361. Lim. 0 et ∞.
Circul. Dir.

1) $\int e^{-px} Sin\, qx . x\, dx = \frac{2pq}{(p^2+q^2)^2}$ (VIII, 567).

2) $\int e^{-px} Sin\, qx . x^2\, dx = 2\frac{3p^2q-q^3}{(p^2+q^2)^3}$ (IV, 497).

3) $\int e^{-px} Sin\, qx . x^3\, dx = 24pq\frac{p^2-q^2}{(p^2+q^2)^4}$ (IV, 497).

4) $\int e^{-px} Sin\, qx . x^4\, dx = 24\frac{5p^4q-10p^2q^3+q^5}{(p^2+q^2)^5}$ (IV, 497).

5) $\int e^{-px} Cos\, qx \,.\, x\, dx = \frac{p^2 - q^2}{(p^2+q^2)^2}$ (VIII, 567).

6) $\int e^{-px} Cos\, qx \,.\, x^2\, dx = 2\frac{p^3 - 3pq^2}{(p^2+q^2)^3}$ (IV, 497).

7) $\int e^{-px} Cos\, qx \,.\, x^3\, dx = 6\frac{p^4 - 6p^2q^2 + q^4}{(p^2+q^2)^4}$ (IV, 497).

8) $\int e^{-px} Cos\, qx \,.\, x^4\, dx = 24p\frac{p^4 - 10p^2q^2 + 5q^4}{(p^2+q^2)^5}$ (IV, 498).

9) $\int e^{-px} Sin\, qx \,.\, x^{r-1}\, dx = \frac{\Gamma(r)}{(p^2+q^2)^{\frac{1}{2}r}} Sin\left(r\, Arctg\frac{q}{p}\right)$ (VIII, 440).

10) $\int e^{-px} Cos\, qx \,.\, x^{r-1}\, dx = \frac{\Gamma(r)}{(p^2+q^2)^{\frac{1}{2}r}} Cos\left(r\, Arctg\frac{q}{p}\right)$ (VIII, 440).

11) $\int e^{qx\,Cos\,\lambda} Sin\,(qx\,Sin\,\lambda).Sin\left(\frac{1}{2}p\pi - x\right).x^{p-1}dx = \Gamma(p)\sum_1^\infty(-1)^n\binom{-p}{2n-1}q^{2n-1}Sin\{(2n-1)\lambda\}$ (VIII, 491).

12) $\int e^{qx\,Cos\,\lambda} Sin\,(qx\,Sin\,\lambda).Cos\left(\frac{1}{2}p\pi - x\right).x^{p-1}dx = \Gamma(p)\left\{1 + \sum_1^\infty(-1)^n\binom{-p}{2n}q^{2n}Sin\,2n\lambda\right\}$ (VIII, 491).

13) $\int e^{qx\,Cos\,\lambda} Cos\,(qx\,Sin\,\lambda).Sin\left(\frac{1}{2}p\pi - x\right).x^{p-1}dx = \Gamma(p)\sum_1^\infty(-1)^n\binom{-p}{2n-1}q^{2n-1}Cos\{(2n-1)\lambda\}$ (VIII, 491).

14) $\int e^{qx\,Cos\,\lambda} Cos\,(qx\,Sin\,\lambda).Cos\left(\frac{1}{2}p\pi - x\right).x^{p-1}dx = \Gamma(p)\left\{1 + \sum_1^\infty(-1)^n\binom{-p}{2n}q^{2n}Cos\,2n\lambda\right\}$ (VIII, 491).

15) $\int e^{-qx} Cos\,(2\sqrt{rx})\,.\,x^{p-1}\,dx = \frac{1}{q^p}\Gamma(p)\sum_0^\infty\frac{(-1)^n}{1^{2n/1}}\frac{p^{n/1}}{q^n}(4r)^n$ (VIII, 514).

16) $\int e^{-qx} Cos\,(2x^2 + qx)\,.\,x\,dx = 0$ (IV, 499).

17) $\int e^{-qx} Cos\,(2x^2 - qx)\,.\,x\,dx = \frac{1}{8}qe^{-\frac{1}{8}q^2}\sqrt{\pi}$ (IV, 500).

18) $\int e^{-qx}\{Sin\,(2x^2+qx) + Cos\,(2x^2+qx)\}\,x^2\,dx = 0$ (IV, 499).

19) $\int e^{-qx}\{Sin\,(2x^2-qx) - Cos\,(2x^2-qx)\}\,x^2\,dx = \frac{1}{16}(2-q^2)e^{-\frac{1}{8}q^2}\sqrt{\pi}$ (IV, 500).

20) $\int e^{-qx}(Cos\,px - i\,Sin\,px)\,.\,x^a\,dx = \frac{1^{a/1}}{(q+pi)^{a+1}}$ V. T. 81, N. 3.

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1) $\int e^{-p^2x^2} Sin\,qx.x\,dx = \frac{q}{4p^3} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (VIII, 516*).

2) $\int e^{-p^2x^2} Cos\,qx.x\,dx = \frac{1}{2p^2} - \frac{q}{4p^3} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 500*).

3) $\int e^{-x^2 i} Sin\,qx.x\,dx = \frac{1+i}{4} q e^{-\frac{1}{4}q^2 i} \sqrt{\pi}$ (IV, 502).

4) $\int e^{-p^2x^2} Sin\,qx.x^2\,dx = \frac{q}{4p^4} + \frac{2p^2-q^2}{8p^5} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 500*).

5) $\int e^{-p^2x^2} Cos\,qx.x^2\,dx = \frac{2p^2-q^2}{8p^5} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

6) $\int e^{-p^2x^2} Sin\,qx.x^3\,dx = \frac{6p^2q-q^3}{16p^7} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

7) $\int e^{-p^2x^2} Cos\,qx.x^3\,dx = \frac{4p^2-q^2}{8p^6} - \frac{6p^2q-q^3}{16p^7} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 501*).

8) $\int e^{-p^2x^2} Sin\,qx.x^4\,dx = \frac{10p^2q-q^3}{16p^8} + \frac{12p^4-12p^2q^2+q^4}{32p^9} \sum_0^\infty \frac{(-1)^n}{(n+1)^{n+1/1}} \left(\frac{q}{p}\right)^{2n+1}$ (IV, 500*).

9) $\int e^{-p^2x^2} Cos\,qx.x^4\,dx = \frac{12p^4-12p^2q^2+q^4}{32p^9} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 501*).

10) $\int e^{-p^2x^2} Sin\,qx.x^5\,dx = \frac{60p^4q-20p^2q^3+q^5}{64p^{11}} e^{-\frac{q^2}{4p^2}} \sqrt{\pi}$ (IV, 500*).

11) $\int e^{-x^2} Sin\,qx.x^{2a-1}\,dx = \frac{a^{a/1}}{2^{2a}} e^{-\frac{1}{4}q^2} \sqrt{\pi}.\sum_0^\infty (-1)^n \frac{(a-1)^{n/-1}}{1^{2n+1/1}} q^{2n+1}$ (IV, 501).

12) $\int e^{-r^2} Cos\,qx.x^{2a}\,dx = \frac{(a+1)^{a/1}}{2^{2a+1}} e^{-\frac{1}{4}q^2} \sqrt{\pi}.\sum_0^\infty (-1)^n \frac{a^{n/-1}}{1^{2n/1}} q^{2n}$ (IV, 501).

13) $\int e^{-r^2x^2} Sin\,qx.x^{p-1}\,dx = \frac{\Gamma(p)}{q^p} Sin\frac{1}{2}p\pi.\left\{1+\sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}\left(\frac{r}{q}\right)^{2n}\right\}$ (VIII, 491).

14) $\int e^{-r^2x^2} Cos\,qx.x^{p-1}\,dx = \frac{\Gamma(p)}{q^p} Cos\frac{1}{2}p\pi.\left\{1+\sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}\left(\frac{r}{q}\right)^{2n}\right\}$ (VIII, 491).

15) $\int e^{-p^2x^2} Tg\,qx.x\,dx = \frac{q}{p^3}\sqrt{\pi}.\sum_1^\infty (-1)^n n e^{-\left(\frac{nq}{p}\right)^2}$ V. T. 467, N. 8.

16) $\int e^{-p^2x^2}\, Cot\, qx\,.\, x\,dx = -\frac{q}{p^3}\sqrt{\pi}.\sum_1^\infty n e^{-\left(\frac{nq}{p}\right)^2}$ V. T. 467, N. 7.

17) $\int e^{-p^2x^2}\, Cosec\, 2qx\,.\,x\,dx = -\frac{q}{p^3}\sqrt{\pi}.\sum_1^\infty (2n-1) e^{-(2n-1)^2\left(\frac{q}{p}\right)^2}$ V. T. 467, N. 9.

18) $\int e^{-p^2x^2}\, Cos\left(\frac{1}{2}a\pi + 2px\right).x^a dx = \frac{(-1)^a}{(2r)^{a+1}}\, e^{-\frac{p^2}{4r^2}}\sqrt{\pi}.\sum_0^\infty (-1)^{n-1}\binom{a}{2n}(n+1)^{n/1}\left(\frac{p}{2r}\right)^{a-2n}$ (VIII, 575).

1) $\int e^{-qx^p}\, Sin(rx^p)\,.\,x^{s-1}\,dx = \frac{1}{p}\Gamma\left(\frac{s}{p}\right).(q^2+r^2)^{-\frac{s}{2p}}\, Sin\left(\frac{s}{p}\, Arctg\frac{r}{q}\right)$ V. T. 361, N. 9.

2) $\int e^{-qx^p}\, Cos(rx^p)\,.\,x^{s-2}\,dx = \frac{1}{p}\Gamma\left(\frac{s}{p}\right).(q^2+r^2)^{-\frac{s}{2p}}\, Cos\left(\frac{s}{p}\, Arctg\frac{r}{q}\right)$ V. T. 361, N. 10.

3) $\int e^{-r^2x^2 - x\,Cot\,\lambda} Sin\, x\,.\,x^{p-1}dx = \Gamma(p).Sin^p\lambda.\left[Sin p\lambda + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}(-r^2)^n Sin^{2n}\lambda.Sin\{(p+2n)\lambda\}\right]$ (VIII, 491).

4) $\int e^{-r^2x^2 - x\,Cot\,\lambda} Cos\, x\,.\,x^{p-1}dx = \Gamma(p).Sin^p\lambda.\left[Cos p\lambda + \sum_1^\infty \frac{p^{2n/1}}{1^{n/1}}(-r^2)^n Sin^{2n}\lambda.Cos\{(p+2n)\lambda\}\right]$ (VIII, 491).

5) $\int e^{-px^2}\left(e^{2qx\,Sin\,\lambda} + e^{-2qx\,Sin\,\lambda}\right) Sin(2qx\,Cos\,\lambda).x\,dx = \frac{q}{p}\, e^{-\frac{q^2}{p}Cos\,2\lambda}\sqrt{\frac{\pi}{p}}\,.\,Cos\left(\lambda - \frac{q^2}{p}Sin\,2\lambda\right)$ (IV, 502).

6) $\int e^{-px^2}\left(e^{2qx\,Sin\,\lambda} - e^{-2qx\,Sin\,\lambda}\right) Cos(2qx\,Cos\,\lambda).x\,dx = \frac{q}{p}\, e^{-\frac{q^2}{p}Cos\,2\lambda}\sqrt{\frac{\pi}{p}}\,.\,Sin\left(\lambda - \frac{q^2}{p}Sin\,2\lambda\right)$ (IV, 502).

7) $\int e^{-p^2x^4+q^2x^2}\{2px\, Cos(2pqx^3) + q\, Sin(2pqx^3)\}\,dx = \frac{1}{2}\sqrt{\pi}$ (IV, 503).

8) $\int e^{-p^2x^4+q^2x^2}\{2px\, Sin(2pqx^3) - q\, Cos(2pqx^3)\}\,dx = 0$ (IV, 503).

9) $\int e^{-px^2 - \frac{q^2}{x^2}} Sin(px^2\, Tg\,\phi).x^2\,dx = \frac{1}{4}\sqrt{\pi}.\left(\frac{1}{p}Cos\,\phi\right)^{\frac{3}{2}}.Sin\left(2bq + \frac{3}{2}\phi\right).e^{-2aq} +$

$+\frac{q}{2p}\sqrt{\pi}.Cos\,\phi.Sin(2bq-\phi).e^{-2aq}$ (IV, 503).

10) $\int e^{-px^2-\frac{q^2}{x^2}} Cos(px^2 Tg\varphi).x^2 dx = \frac{1}{4}\sqrt{\pi}.\left(\frac{1}{p} Cos\varphi\right)^{\frac{3}{2}}.Cos\left(2bq+\frac{3}{2}\varphi\right).e^{-2aq} +$
$+\frac{q}{2p}\sqrt{\pi}.Cos\varphi.Cos(2bq-\varphi).e^{-2aq}$ (IV, 503).

11) $\int e^{-px^2-\frac{q^2}{x^2}} Sin(px^2 Tg\varphi).x^4 dx = \frac{1}{2}\sqrt{\pi}.e^{-2aq}\left\{\frac{3}{4}\left(\frac{1}{p} Cos\varphi\right)^{\frac{5}{2}}.Sin\left(2bq+\frac{5}{2}\varphi\right)+\right.$
$\left.+\frac{q}{p^2} Cos^2\varphi.(Cos\,2bq+Sin\,2bq)+q^2\left(\frac{1}{p} Cos\varphi\right)^{\frac{3}{2}}.Sin\left(2bq-\frac{5}{2}\varphi\right)\right\}$ (IV, 503).

12) $\int e^{-px^2-\frac{q^2}{x^2}} Cos(px^2 Tg\varphi).x^4 dx = \frac{1}{2}\sqrt{\pi}.e^{-2aq}\left\{\frac{3}{4}\left(\frac{1}{p} Cos\varphi\right)^{\frac{5}{2}}.Cos\left(2bq+\frac{5}{2}\varphi\right)+\right.$
$\left.+\frac{q}{p^2} Cos^2\varphi.(Cos\,2bq-Sin\,2bq)+q^2\left(\frac{1}{p} Cos\varphi\right)^{\frac{3}{2}}.Cos\left(2bq-\frac{5}{2}\varphi\right)\right\}$ (IV, 503).

Dans 9) à 12) on a $a=\sqrt{\frac{1}{2}p(Sec\varphi+1)}, b=\sqrt{\frac{1}{2}p(Sec\varphi-1)}$

13) $\int e^{(p^2-q^2)\left(x^2+\frac{r^2}{x^2}\right)} Sin\left\{2pq\left(x^2-\frac{r^2}{x^2}\right)\right\}.x^{2a}dx = \frac{1}{2r}e^{-2r\sqrt{(p^2+q^2)}} Cos\left\{(2a+1)Arcsin\left(\frac{p}{\sqrt{p^2+q^2}}\right)\right\}.$
$.\frac{\sqrt{\pi}}{(p^2+q^2)^{a+\frac{1}{2}}}\sum_0^\infty \frac{(a-n)^{n|1}}{2^{n/2}(2r)^n\sqrt{p^2+q^2}^{\,n}}$ $[p>q]$ (IV, 504).

14) $\int e^{(p^2-q^2)\left(x^2+\frac{r^2}{x^2}\right)} Cos\left\{2pq\left(x^2-\frac{r^2}{x^2}\right)\right\}.x^{2a}dx = \frac{1}{2r}e^{-2r\sqrt{(p^2+q^2)}} Sin\left\{(2a+1)Arcsin\left(\frac{p}{\sqrt{p^2+q^2}}\right)\right\}.$
$.\frac{\sqrt{\pi}}{(p^2+q^2)^{a+\frac{1}{2}}}\sum_0^\infty \frac{(a-n)^{n|1}}{2^{n/2}(2r)^n\sqrt{p^2+q^2}^{\,n}}$ $[p>q]$ (IV, 504).

15) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Sin\left\{p\left(x-\frac{1}{x}\right)^2\right\}.x^{2a}dx = \frac{1}{2}e^{-2(q+pi)}\sqrt{\frac{\pi}{q+pi}}.\sum_0^\infty \frac{(a+n)^{2n|-1}}{2^{n/2}}\left\{\frac{1}{2(p+qi)}\right\}^n$
(IV, 504).

16) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Cos\left\{p\left(x-\frac{1}{x}\right)^2\right\}.x^{2a}dx = \frac{1}{2}e^{-2(q+pi)}\sqrt{\frac{\pi}{q+pi}}.\sum_0^\infty \frac{(a+n)^{2n|-1}}{2^{n/2}}\left\{\frac{1}{2(p+qi)}\right\}^n$
(IV, 504).

F. Algébr. rat. ent.;
Expon. en dén. binôme;
Circul. Dir.

TABLE 364.

Lim. 0 et ∞.

1) $\int \frac{Cos\, q x}{e^x - e^{-x}} x\, dx = \frac{1}{2}\pi^2 \frac{e^{-q\pi}}{(1+e^{-q\pi})^2}$ (IV, 504).

2) $\int \frac{e^x - e^{-x}}{e^x + e^{-x}} Cos\, q x . x\, dx = -\frac{1}{2}\pi^2 e^{-\frac{1}{2}q\pi} \frac{1+e^{-q\pi}}{(1-e^{-q\pi})^2}$ (IV, 504).

3) $\int \frac{e^x + e^{-x}}{e^x - e^{-x}} Cos\, q x . x\, dx = -\pi^2 \frac{e^{-q\pi}}{(1-e^{-q\pi})^2}$ (IV, 505).

4) $\int \frac{e^x - 1}{e^x + 1} Cos\, q x . x\, dx = -2\pi^2 e^{-q\pi} \frac{1+e^{-2q\pi}}{(1-e^{-2q\pi})^2}$ V. T. 364, N. 1, 3.

5) $\int \frac{e^x + 1}{e^x - 1} Cos\, q x . x\, dx = \frac{-4\pi^2}{(e^{q\pi} - e^{-q\pi})^2}$ V. T. 364, N. 1, 3.

6) $\int \frac{x\, Sin\, q x}{e^{\pi x} + e^{-\pi x}} dx = \frac{1}{4} \frac{e^{\frac{1}{2}q} - e^{-\frac{1}{2}q}}{(e^{\frac{1}{2}q} + e^{-\frac{1}{2}q})^2}$ (IV, 505).

7) $\int \frac{x\, Cos\, q x}{e^{\pi x} - e^{-\pi x}} dx = \frac{1}{2} \frac{e^q}{(e^q + 1)^2}$ (IV, 505*).

8) $\int \frac{(1 - e^{-2px})\, Sin\, q x . e^{-px} x^{r-1}}{1 + 2e^{-2px} Cos\, 2 q x + e^{-4px}} dx = \frac{\Gamma(r)}{(p^2+q^2)^{\frac{1}{2}r}} Sin\left(r\, Arctg\, \frac{q}{p}\right) . \sum_0^\infty \frac{(-1)^n}{(2n+1)^r}$
Clausen, Gr. 30, 167.

F. Alg. rat. fract. à dén. x;
Exponent. $e^{\pm a x}$;
Circ. Dir. monôme au num.

TABLE 365.

Lim. 0 et ∞.

1) $\int e^{-px} Sin\, q x \frac{dx}{x} = Arctg \frac{q}{p}$ (VIII, 344).

2) $\int e^{-pxi} Sin\, q x \frac{dx}{x} = \frac{1}{2} i\, l \frac{p-q}{p+q}$ (IV, 505).

3) $\int e^{-px} Cos\, q x \frac{dx}{x} = \infty$ (IV, 505). 4) $\int e^{-px} Sin^2 q x \frac{dx}{x} = \frac{1}{4} l \frac{p^2 + 4q}{p^2}$ (VIII, 458).

5) $\int e^{-px} Sin\, q x . Sin\, r x \frac{dx}{x} = \frac{1}{4} l \frac{p^2 + (q+r)^2}{p^2 + (q-r)^2}$ V. T. 284, N. 6.

6) $\int e^{-px} Sin\, r x . Cos\, q x \frac{dx}{x} = \frac{1}{2} Arctg \frac{2pr}{p^2 + q^2 - r^2}$ (VIII, 345).

7) $\int e^{-px} Sin^3 qx \frac{dx}{x} = \frac{1}{2} Arctg \frac{q}{p} - \frac{1}{4} Arctg \frac{2q}{p}$

8) $\int e^{-px} Sin^2 qx . Sin rx \frac{dx}{x} = \frac{1}{2} Arctg \frac{r}{p} - \frac{1}{4} Arctg \frac{2pr}{p^2+q^2-r^2}$

9) $\int e^{-px} Sin^2 qx . Cos rx \frac{dx}{x} = \frac{1}{8} l \frac{\{p^2+(2q+r)^2\}\{p^2+(2q-r)^2\}}{(p^2+r^2)^2}$

10) $\int e^{-px} Sin qx . Cos^2 rx \frac{dx}{x} = \frac{1}{2} Arctg \frac{q}{p} + \frac{1}{4} Arctg \frac{2pq}{p^2+r^2-q^2}$

11) $\int e^{-px} Sin qx . Sin rx . Sin sx \frac{dx}{x} = -\frac{1}{4} Arctg \frac{q+r+s}{p} + \frac{1}{4} Arctg \frac{q-r+s}{p} + \frac{1}{4} Arctg \frac{q+r-s}{p} - -\frac{1}{4} Arctg \frac{q-r-s}{p}$

12) $\int e^{-px} Sin^4 qx \frac{dx}{x} = \frac{1}{8} l \frac{(p^2+4q^2)^2}{p^3} - \frac{1}{16} l (p^2+16q^2)$

13) $\int e^{-px} Sin^3 qx . Cos rx \frac{dx}{x} = \frac{3}{8} Arctg \frac{q+r}{p} + \frac{3}{8} Arctg \frac{q-r}{p} - \frac{1}{8} Arctg \frac{3q+r}{p} - \frac{1}{8} Arctg \frac{3q-r}{p}$

14) $\int e^{-px} Sin^2 qx . Sin^2 rx \frac{dx}{x} = \frac{1}{8} l \frac{p^2+4r^2}{p^2} + \frac{1}{16} l \frac{(p^2+4q^2)^2}{\{p^2+4(q+r)^2\}\{p^2+4(q-r)^2\}}$

15) $\int e^{-px} Sin^2 qx . Sin rx . Sin sx \frac{dx}{x} = \frac{1}{8} l \frac{p^2+(r+s)^2}{p^2+(r-s)^2} + \frac{1}{16} l \frac{\{p^2+(2q-r+s)^2\}\{p^2+(2q+r-s)^2\}}{\{p^2+(2q+r+s)^2\}\{p^2+(2q-r-s)^2\}}$

16) $\int e^{-px} Sin^2 qx . Sin rx . Cos sx \frac{dx}{x} = \frac{1}{4} Arctg \frac{r+s}{p} + \frac{1}{4} Arctg \frac{r-s}{p} - \frac{1}{8} Arctg \frac{2q+r+s}{p} + + \frac{1}{8} Arctg \frac{2q-r-s}{p} + \frac{1}{8} Arctg \frac{2q-r+s}{p} - \frac{1}{8} Arctg \frac{2q+r-s}{p}$

Sur 7) à 16) voyez E. O. A.

17) $\int e^{-px} Sin^2 qx . Cos^2 rx \frac{dx}{x} = \frac{1}{16} l \left\{ \frac{(p^2+4q^2)^2}{p^4} \frac{\{p^2+4(q+r)^2\}\{p^2-4(q-r)^2\}}{(p^2+4r^2)^2} \right\}$

V. T. 365, N. 4, 9.

18) $\int e^{-px} Sin^5 qx \frac{dx}{x} = \frac{5}{8} Arctg \frac{q}{p} - \frac{5}{16} Arctg \frac{3q}{p} + \frac{1}{16} Arctg \frac{5q}{p}$

19) $\int e^{-px} Sin^3 qx . Sin^2 rx \frac{dx}{x} = \frac{1}{16} Arctg \frac{3q+2r}{p} + \frac{1}{16} Arctg \frac{3q-2r}{p} - \frac{3}{16} Arctg \frac{q+2r}{p} - -\frac{3}{16} Arctg \frac{q-2r}{p} - \frac{1}{8} Arctg \frac{3q}{p} + \frac{3}{8} Arctg \frac{q}{p}$

F. Alg. rat. fract. à dén. x;
Exponent. $e^{\pm a x}$; TABLE 365, suite. Lim. 0 et ∞.
Circ. Dir. monôme au num.

20) $\int e^{-p x} Sin^2 q x . Sin^2 r x . Sin s x \frac{dx}{x} = -\frac{1}{16} Arctg \frac{2q-2r-s}{p} - \frac{1}{16} Arctg \frac{2q+2r-s}{p} + \frac{1}{16} Arctg \frac{2q-2r+s}{p} + \frac{1}{16} Arctg \frac{2q+2r+s}{p} - \frac{1}{8} Arctg \frac{2q+s}{p} + \frac{1}{8} Arctg \frac{2q-s}{p} - \frac{1}{8} Arctg \frac{2r+s}{p} + \frac{1}{8} Arctg \frac{2r-s}{p} + \frac{1}{4} Arctg \frac{s}{p}$

Sur 17) à 20) voyez E. O. A.

21) $\int e^{-p^2 x^2} Sin q x \frac{dx}{x} = \frac{q}{2p} \sqrt{\pi} . \sum_0^\infty \frac{(-1)^n}{(2n+1) 1^{n/1}} \left(\frac{q}{2p}\right)^{2n}$ (IV, 506).

F. Alg. rat. fract. à dén. x;
Expon. de Circ. Directe; TABLE 366. Lim. 0 et ∞.
Circ. Dir. monôme au num.

1) $\int e^{s \, Cos \, r x} Sin (s \, Sin \, r x) \frac{dx}{x} = \frac{1}{2} \pi (e^s - 1)$ (VIII, 640).

2) $\int e^{s \, Cos \, r x} Sin (a r x + p \, Sin \, r x) \frac{dx}{x} = \frac{\pi}{2} e^s$ (VIII, 640*).

3) $\int e^{s \, Cos \, r x} Sin (s \, Sin \, r x) . Cos \, a r x \frac{dx}{x} = \frac{\pi}{2} \sum_a^\infty \frac{1}{1^{n/1}} s^n$ (VIII, 640*).

4) $\int e^{s \, Cos \, r x} Cos (s \, Sin \, r x) . Sin \, a r x \frac{dx}{x} = \frac{\pi}{2} \sum_0^a \frac{1}{1^{n/1}} s^n$ (VIII, 640*).

5) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 \, Sin \, r_1 x + \ldots) \frac{dx}{x} = \frac{\pi}{2} (e^{s + s_1 + \cdots} - 1)$ (H, 16).

6) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 \, Sin \, r_1 x + \ldots + x) \frac{dx}{x} = \frac{\pi}{2} e^{s + s_1 + \cdots}$ (H, 16).

7) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 Sin \, r_1 x + \ldots - x) \frac{dx}{x} = \frac{\pi}{2} (e^{s + s_1 + \cdots} - 2)$ (H, 16).

8) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 \, Sin \, r_1 x + \ldots + t x) \frac{dx}{x} = \frac{\pi}{2} e^{s + s_1 + \cdots}$ (H, 17).

9) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 Sin \, r_1 x + \ldots) . Cos \, x \frac{dx}{x} = \frac{\pi}{2} (e^{s + s_1 + \cdots} - 1)$ (H, 16).

10) $\int e^{s \, Cos \, r x + s_1 Cos \, r_1 x + \cdots} Sin (s \, Sin \, r x + s_1 \, Sin \, r_1 x + \ldots + t x) . Cos \, x \frac{dx}{x} = \frac{\pi}{2} e^{s + s_1 + \cdots}$ (H, 17).

11) $\int e^{s\, Cos\, r\, x + s_1\, Cos\, r_1\, x + \cdots}\, Cos\,(r\, Sin\, s\, x + r_1\, Sin\, s_1\, x + \ldots)\,.\, Sin\, x\, \frac{dx}{x} = \frac{\pi}{2}$ (H, 16).

12) $\int e^{s\, Cos\, r\, x + s_1\, Cos\, r_1\, x + \cdots}\, Cos\,(r\, Sin\, s\, x + r_1\, Sin\, s_1\, x + \ldots + t\, x)\,.\, Sin\, x\, \frac{dx}{x} = 0$ (H, 17).

13) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\, \frac{dx}{x} =$

$= \frac{\pi}{2}\, e^{t + t_1 + \cdots}$ (H, 19).

14) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots + 1)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\, \frac{dx}{x} =$

$= \frac{\pi}{2}\, e^{t + t_1 + \cdots}$ (H, 20).

15) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots - 1)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\, \frac{dx}{x} =$

$= \frac{\pi}{2^{s + s_1 + \cdots}}\, \{2^{s + s_1 + \cdots - 1}\, e^{t + t_1 + \cdots} - 1\}$ (H, 20).

16) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\,.$

$Cos\, x\, \frac{dx}{x} = \frac{\pi}{2^{1 + s + s_1 + \cdots}}\, \{2^{s + s_1 + \cdots}\, e^{t + t_1 + \cdots} - 1\}$ (H, 20).

17) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Cos\,\{(s\, r + s_1\, r_1 + \ldots)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\,.$

$Sin\, x\, \frac{dx}{x} = \frac{\pi}{2^{1 + s + s_1 + \cdots}}$ (H, 20).

18) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots + p)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\, \frac{dx}{x} =$

$= \frac{\pi}{2}\, e^{t + t_1 + \cdots}$ (H, 23).

19) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Sin\,\{(s\, r + s_1\, r_1 + \ldots + p)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\,.$

$Cos\, x\, \frac{dx}{x} = \frac{\pi}{2}\, e^{t + t_1 + \cdots}$ (H, 23).

20) $\int e^{t\, Cos\, u\, x + t_1\, Cos\, u_1\, x + \cdots}\, Cos^s\, r\, x\,.\, Cos^{s_1}\, r_1\, x \ldots Cos\,\{(s\, r + s_1\, r_1 + \ldots + p)\, x + t\, Sin\, u\, x + t_1\, Sin\, u_1\, x + \ldots\}\,.$

$Sin\, x\, \frac{dx}{x} = 0$ (H, 23).

21) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}\frac{dx}{x}=$
$=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 21).

22) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+1)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}\frac{dx}{x}=0$ (H, 22).

23) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots-1)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}\frac{dx}{x}=$
$=\frac{\pi}{2^{q+q_1+\dots+s+s_1+\dots}}$ (H, 22).

24) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}\frac{dx}{x}=0$ (H, 23).

25) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}.Cos\,x\frac{dx}{x}=$
$=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 21).

26) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}.Cos\,x\frac{dx}{x}=0$ (H, 23).

27) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}.Sin\,x\frac{dx}{x}=$
$=\frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 21).

28) $\int e^{t\,Cos\,u\,x+t_1\,Cos\,u_1\,x+\dots} Cos^q\,p\,x\,.\,Cos^{q_1}p_1\,x\dots Sin^s\,r\,x\,.\,Sin^{s_1}r_1\,x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-\right.$
$\left.-(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x-t\,Sin\,u\,x-t_1\,Sin\,u_1\,x-\dots\right\}.Sin\,x\frac{dx}{x}=0$ (H, 23).

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1) $\int \frac{1-e^{-qx}}{x} Sin\, px\, dx = Arctg \frac{q}{p}$ V. T. 367, N. 3.

2) $\int \frac{1-e^{-qx}}{x} Cos\, px\, dx = \frac{1}{2} l \frac{p^2+q^2}{p^2}$ V. T. 367, N. 4.

3) $\int \frac{e^{-qx}-e^{-rx}}{x} Sin\, px\, dx = Arctg \frac{(r-q)p}{p^2+qr}$ (VIII, 359).

4) $\int \frac{e^{-qx}-e^{-rx}}{x} Cos\, px\, dx = \frac{1}{2} l \frac{p^2+r^2}{p^2+q^2}$ (VIII, 359).

5) $\int \left(Cos\, qx - \frac{e^{px}+e^{-px}}{2x} \right) \frac{dx}{x} = l \frac{p}{q}$ (VIII, 456).

6) $\int \frac{1-Cos\, px}{x} e^{-qx}\, dx = \frac{1}{2} l \frac{p^2+q^2}{q^2}$ (VIII, 581).

7) $\int \frac{Sin\, px - Sin\, qx}{x} e^{-rx}\, dx = Arctg \frac{(p-q)r}{pq+r^2}$ V. T. 367, N. 3.

8) $\int \frac{Cos\, px - Cos\, qx}{x} e^{-rx}\, dx = \frac{1}{2} l \frac{q^2+r^2}{p^2+r^2}$ (VIII, 581).

9) $\int \frac{e^{-px} - Cos\, qx}{x} dx = l \frac{q}{p}$ (VIII, 441).

10) $\int \frac{e^{-px} - e^{-qx} Cos\, rx}{x} dx = \frac{1}{2} l \frac{q^2+r^2}{p^2}$ V. T. 367, N. 12.

11) $\int \frac{e^{-px} Sin\, qx - e^{-rx} Sin\, sx}{x} dx = Arctg \frac{qr-ps}{pr+qs}$ (VIII, 337).

12) $\int \frac{e^{-px} Cos\, qx - e^{-rx} Cos\, sx}{x} dx = \frac{1}{2} l \frac{r^2+s^2}{p^2+q^2}$ (VIII, 337).

13) $\int \left\{ e^{-x^{2^a}} - Cos\left(x^{2^b}\right) \right\} dx = \left(\frac{1}{2^b} - \frac{1}{2^a} \right) A$ (VIII, 702).

14) $\int \frac{e^{p\, Sin\, x} - e^{-p\, Sin\, x}}{x} Cos\,(p\, Cos\, x) . Sin\, x . Sin\, 2ax\, dx = \pi p^{2a} \frac{(-1)^a}{1^{2a+1/1}}$ (VIII, 279*).

15) $\int \frac{e^{p\, Sin\, x} + e^{-p\, Sin\, x}}{x} Cos\,(p\, Cos\, x) . Sin\, x . Cos\left\{(2a-1)x\right\} dx = \pi p^{2a} \frac{(-1)^a}{1^{2a/1}}$ (VIII, 279).

16) $\int \frac{e^{p\, Sin\, x} + e^{-p\, Sin\, x}}{x} Sin\,(p\, Cos\, x) . Sin\, ax\, dx = \pi \sum_0^a \frac{(-p)^n}{1^{2n+1/1}}$ (VIII, 639).

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17) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Sin(p\,Cos\,x).Cos\,a\,x\,dx = -\pi \sum_a^\infty \frac{(-p)^n}{1^{2n/1}}$ (VIII, 639).

18) $\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x).Sin\,a\,x\,dx = \pi \sum_0^a \frac{(-p)^n}{1^{2n/1}}$ (VIII, 639).

19) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x).Cos\,a\,x\,dx = \pi \sum_a^\infty \frac{(-p)^n}{1^{2n+1/1}}$ (VIII, 639).

20) $\int \frac{e^{p\,Sin\,x} + e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x).Cos\,x.Sin\{(2a-1)x\}\,dx = \pi p^{2a} \frac{(-1)^{a-1}}{1^{2a/1}} + \pi \sum_0^{2a} \frac{(-p)^n}{1^{2n/1}}$

V. T. 367, N. 15, 18.

21) $\int \frac{e^{p\,Sin\,x} - e^{-p\,Sin\,x}}{x} Cos(p\,Cos\,x).Cos\,x.Cos\,2\,a\,x\,dx = \pi p^{2a} \frac{(-1)^a}{1^{2a+1/1}} + \pi \sum_{2a+1}^\infty \frac{(-p)^n}{1^{2n+1/1}}$

V. T. 367, N. 14, 19.

F. Alg. rat. fract. à dén. x^2;
Exponent. e^{ax};
Circul. Directe.

TABLE 368.

Lim. 0 et ∞.

1) $\int e^{-px} Sin\,q\,x.Sin\,r\,x \frac{dx}{x^2} = \frac{q}{2} Arctg\left(\frac{2pr}{p^2+q^2-r^2}\right) + \frac{r}{2} Arctg\left(\frac{2pq}{p^2-q^2+r^2}\right) + \frac{p}{4} l \frac{p^2+(r-q)^2}{p^2+(r+q)^2}$

(VIII, 345).

2) $\int e^{-px} Sin^2\,q\,x \frac{dx}{x^2} = q\,Arctg \frac{2q}{p} - \frac{p}{4} l \frac{p^2+4q^2}{p^2}$ (VIII, 345*).

3) $\int e^{-px} Cos^2\,q\,x \frac{dx}{x^2} = \infty$ (VIII, 361).

4) $\int e^{-px} Sin\,q\,x.Sin\,r\,x.Sin\,s\,x \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{q+r+s}{p} - \frac{p}{4} Arctg \frac{q-r+s}{p} - \frac{p}{4} Arctg \frac{q+r-s}{p} +$

$+ \frac{p}{4} Arctg \frac{q-r-s}{p} + \frac{q+r+s}{8} l\{p^2+(q+r+s)^2\} - \frac{q+r-s}{8} l\{p^2+(q+r-s)^2\} -$

$- \frac{q-r+s}{8} l\{p^2+(q-r+s)^2\} + \frac{q-r-s}{8} l\{p^2+(q-r-s)^2\}$ (E. O. A).

5) $\int e^{-px} Sin\,q\,x.Sin\,r\,x.Cos\,q\,x \frac{dx}{x^2} = \frac{q+r+s}{4} Arctg \frac{q+r+s}{p} - \frac{q-r+s}{4} Arctg \frac{q-r+s}{p} -$

$- \frac{q+r-s}{4} Arctg \frac{q+r-s}{p} + \frac{q-r-s}{4} Arctg \frac{q-r-s}{p} + \frac{p}{8} l \frac{p^2+(q-r+s)^2}{p^2+(q+r+s)^2} +$

$+ \frac{p}{8} l \frac{p^2-(q+r-s)^2}{p^2-(q-r-s)^2}$ (VIII, 346).

6) $$\int e^{-px} Sin^2 qx . Sin rx \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{2q+r}{p} - \frac{p}{4} Arctg \frac{2q-r}{p} - \frac{p}{2} Arctg \frac{r}{p} + \\ + \frac{2q+r}{8} l \{p^2 + (2q+r)^2\} - \frac{2q-r}{8} l \{p^2 + (2q-r)^2\} - \frac{r}{4} l (p^2 + r^2)$$

7) $$\int e^{-px} Sin^2 qx . Cos rx \frac{dx}{x^2} = \frac{2q+r}{4} Arctg \frac{2q+r}{p} - \frac{2q-r}{4} Arctg \frac{r-2q}{p} - \frac{r}{2} Arctg \frac{r}{p} + \\ + \frac{p}{8} l \frac{(p^2+r^2)^2}{\{p^2 + (2q+r)^2\}\{p^2 + (2q-r)^2\}}$$

8) $$\int e^{-px} Sin^3 qx \frac{dx}{x^2} = \frac{p}{4} Arctg \frac{3q}{p} - \frac{3p}{4} Arctg \frac{q}{p} + \frac{3q}{8} l \frac{p^2 + 9q^2}{p^2 + q^2}$$

9) $$\int e^{-px} Sin^2 qx . Sin rx . Sin sx \frac{dx}{x^2} = \frac{r+s}{4} Arctg \frac{r+s}{p} - \frac{r-s}{4} Arctg \frac{r-s}{p} - \frac{2q+r+s}{8} \\ Arctg \frac{2q+r+s}{p} + \frac{2q-r+s}{8} Arctg \frac{2q-r+s}{p} + \frac{2q+r-s}{8} Arctg \frac{2q+r-s}{p} - \\ - \frac{2q-r-s}{8} Arctg \frac{2q-r-s}{p} + \frac{p}{8} l \frac{p^2 + (r-s)^2}{p^2 + (r+s)^2} + \frac{p}{16} \\ l \frac{\{p^2 + (2q+r+s)^2\}\{p^2 + (2q-r-s)^2\}}{\{p^2 + (2q-r+s)^2\}\{p^2 + (2q+r-s)^2\}}$$

10) $$\int e^{-px} Sin^2 qx . Sin^2 rx \frac{dx}{x^2} = \frac{r}{2} Arctg \frac{2r}{p} - \frac{q+r}{4} Arctg \frac{2(q+r)}{p} - \frac{q-r}{4} Arctg \frac{2(q-r)}{p} + \\ + \frac{q}{2} Arctg \frac{2q}{p} - \frac{p}{8} l \frac{p^2 + 4r^2}{p^2} + \frac{p}{16} l \frac{\{p^2 + 4(q+r)^2\}\{p^2 + 4(q-r)^2\}}{(p^2 + 4q^2)^2}$$

11) $$\int e^{-px} Sin^2 qx . Sin rx . Cos sx \frac{dx}{x^2} = \frac{p}{8} Arctg \frac{2q+r+s}{p} - \frac{p}{8} Arctg \frac{2q-r+s}{p} + \frac{p}{8} Arctg \frac{2q+r-s}{p} - \\ - \frac{p}{8} Arctg \frac{2q-r-s}{p} - \frac{p}{4} Arctg \frac{r+s}{p} - \frac{p}{4} Arctg \frac{r-s}{p} + \frac{2q+r+s}{16} l \{p^2 + (2q+r+s)^2\} - \\ - \frac{2q-r+s}{16} l \{p^2 + (2q-r+s)^2\} + \frac{2q+r-s}{16} l \{p^2 + (2q+r-s)^2\} - \frac{2q-r-s}{16} \\ l \{p^2 + (2q-r-s)^2\} - \frac{s+r}{8} l \{p^2 + (s+r)^2\} + \frac{s-r}{8} l \{p^2 + (s+r)^2\}$$

12) $$\int e^{-px} Sin qx . Sin rx . Cos^2 qx \frac{dx}{x^2} = \frac{q+r}{4} Arctg \frac{q+r}{p} - \frac{q-r}{4} Arctg \frac{q-r}{p} + \frac{q+r+2s}{8} \\ Arctg \frac{q+r+2s}{p} - \frac{q+r-2s}{8} Arctg \frac{q+r-2s}{p} - \frac{q-r+2s}{p} Arctg \frac{q-r+2s}{p} + \\ + \frac{q-r-2s}{8} Arctg \frac{q-r-2s}{p} + \frac{p}{8} l \frac{p^2 + (q-r)^2}{p^2 + (q+r)^2} + \frac{p}{16} \\ l \frac{\{p^2 + (q-r+2s)^2\}\{p^2 + (q+r-2s)^2\}}{\{p^2 + (q+r+2s)^2\}\{p^2 + (q-r-2s)^2\}}$$

13) $\int e^{-px}\, Sin^2 qx . Cos^2 rx \frac{dx}{x^2} = \frac{q}{2}\, Arctg \frac{2q}{p} + \frac{q+r}{4}\, Arctg \frac{2(q+r)}{p} - \frac{q-r}{4}\, Arctg \frac{2(r-q)}{p} -$

$- \frac{r}{2}\, Arctg \frac{2r}{p} - \frac{p}{8}\, l \frac{p^2+4q^2}{p^2} + \frac{p}{16}\, l \frac{(p^2+4r^2)^2}{\{p^2+4(q+r)^2\}\{p^2+4(q-r)^2\}}$

14) $\int e^{-px}\, Sin^3 qx . Cos rx \frac{dx}{x^2} = \frac{p}{8}\, Arctg \frac{3q+r}{p} - \frac{p}{8}\, Arctg \frac{r-3q}{p} - \frac{3p}{8}\, Arctg \frac{q+r}{p} +$

$+ \frac{3p}{8}\, Arctg \frac{r-q}{p} + \frac{3q+r}{16}\, pl\{p^2+(3q+r)^2\} + \frac{3q-r}{16}\, pl\{p^2+(3q-r)^2\} -$

$- \frac{q+r}{16}\, 3pl\{p^2+(q+r)^2\} + \frac{q-r}{16}\, 3pl\{p^2+(q-r)^2\}$

15) $\int e^{-px}\, Sin^4 qx \frac{dx}{x^2} = q\, Arctg \frac{2q}{p} - \frac{q}{2}\, Arctg \frac{4q}{p} - \frac{p}{8}\, l \frac{(p^2+4q^2)^2}{p^3} + \frac{p}{16}\, l(p^2+16q^2)$

16) $\int e^{-px}\, Sin^2 qx . Sin^2 rx . Sin sx \frac{dx}{x^2} = \frac{p}{16}\, Arctg \frac{2q-2r-s}{p} + \frac{p}{16}\, Arctg \frac{2q+2r-s}{p} - \frac{p}{16}$

$Arctg \frac{2q-2r+s}{p} - \frac{p}{16}\, Arctg \frac{2q+2r+s}{p} + \frac{p}{8}\, Arctg \frac{2q+s}{p} - \frac{p}{8}\, Arctg \frac{2q-s}{p} + \frac{p}{8}$

$Arctg \frac{2r+s}{p} - \frac{p}{8}\, Arctg \frac{2r-s}{p} - \frac{p}{4}\, Arctg \frac{s}{p} - \frac{2q+2r+s}{32}\, l\{p^2+(2q+2r+s)^2\} -$

$- \frac{2q-2r+s}{32}\, l\{p^2+(2q-2r+s)^2\} + \frac{2q+2r-s}{32}\, pl\{p^2+(2q+2r-s)^2\} +$

$+ \frac{2q-2r-s}{32}\, l\{p^2+(2q-2r-s)^2\} + \frac{2q+s}{16}\, pl\{p^2+(2q+s)^2\} - \frac{2q-s}{16}\, p$

$l\{p^2+(2q-s)^2\} + \frac{2r+s}{16}\, pl\{p^2+(2r+s)^2\} - \frac{2r-s}{16}\, pl\{p^2+(2r-s)^2\} - \frac{1}{8}\, psl(p^2+s^2)$

17) $\int e^{-px}\, Sin^3 qx . Sin^2 rx \frac{dx}{x^2} = \frac{3p}{16}\, Arctg \frac{q+2r}{p} - \frac{3p}{16}\, Arctg \frac{2r-q}{p} - \frac{p}{16}\, Arctg \frac{3q+2r}{p} +$

$+ \frac{p}{16}\, Arctg \frac{2r-3q}{p} + \frac{p}{8}\, Arctg \frac{3q}{p} - \frac{3p}{8}\, Arctg \frac{q}{p} - \frac{3q+2r}{32}\, l\{p^2+(3q+2r)^2\} -$

$- \frac{3q-2r}{32}\, l\{p^2+(3q-2r)^2\} + 3\frac{q+2r}{32}\, l\{p^2+(q+2r)^2\} +$

$+ 3\frac{q-2r}{32}\, l\{p^2+(q-2r)^2\} + \frac{3q}{16}\, l \frac{p^2+9q^2}{p^2+q^2}$

18) $\int e^{-px}\, Sin^2 qx . Sin rx . Cos^2 sx \frac{dx}{x} = \frac{(2q+r+2s)^2-p^2}{32}\, Arctg \frac{2q+r+2s}{p} + \frac{(2q-r-2s)^2-p^2}{32}$

$Arctg \frac{2q-r-2s}{p} + \frac{(2q-r+2s)^2-p^2}{32}\, Arctg \frac{2q-r+2s}{p} - \frac{(2q+r-2s)^2-p^2}{32}$

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$$Arctg\frac{2q+r-2s}{p}-\frac{(r+2s)^2-p^2}{16}Arctg\frac{r+2s}{p}-\frac{(r-2s)^2-p^2}{16}Arctg\frac{r-2s}{p}+$$

$$+\frac{(2q+r)^2-p^2}{16}Arctg\frac{2q+r}{p}-\frac{(2q-r)^2-p^2}{16}Arctg\frac{2q-r}{p}+\frac{p^2-r^2}{8}Arctg\frac{r}{p}-$$

$$-\frac{2q+r+2s}{32}pl\{p^2+(2q+r+2s)^2\}+\frac{2q-r-2s}{32}pl\{p^2+(2q-r-2s)^2\}+$$

$$+\frac{2q-r+2s}{32}pl\{p^2+(2q-r+2s)^2\}+\frac{2q+r-2s}{32}pl\{p^2+(2q+r-2s)^2\}+$$

$$+\frac{r+2s}{16}pl\{p^2+(r+2s)^2\}+\frac{r-2s}{16}pl\{p^2+(r-2s)^2\}-\frac{2q+r}{16}pl\{p^2+(2q+r)^2\}+$$

$$+\frac{2q-r}{16}pl\{p^2+(2q-r)^2\}+\frac{1}{8}prl(p^2+r^2)$$

19) $$\int e^{-px}Sin^5 qx\frac{dx}{x^2}=-\frac{5p}{8}Arctg\frac{q}{p}+\frac{5p}{16}Arctg\frac{3q}{p}-\frac{p}{16}Arctg\frac{5q}{p}-\frac{5q}{16}l(p^2+q^2)+$$
$$+\frac{15q}{32}l(p^2+9q^2)-\frac{5q}{32}l(p^2+25q^2)$$

Sur 6) à 19) voyez E. O. A.

20) $$\int\frac{Cos\,qx-Cos\,rx}{x^2}e^{-px}dx=\frac{p}{2}l\frac{p^2+q^2}{p^2+r^2}+r\,Arctg\frac{r}{p}-q\,Arctg\frac{q}{p}$$ (IV, 509).

21) $$\int\frac{e^{-px}-e^{-qx}}{x^2}Sin\,rx\,dx=\frac{r}{2}l\frac{q^2+r^2}{p^2+r^2}+q\,Arctg\frac{r}{q}-p\,Arctg\frac{q}{p}$$ (IV, 509).

22) $$\int\{qe^{-px}Sin\,rx-re^{-sx}Sin\,qx\}\frac{dx}{x^2}=qr\left\{\frac{1}{2}l\frac{q^2+s^2}{p^2+r^2}+\frac{s}{q}Arctg\frac{s}{q}-\frac{p}{r}Arctg\frac{p}{r}\right\}$$

23) $$\int\{q-e^{-px}(p\,Sin\,qx+q\,Cos\,qx)\}\frac{dx}{x^2}=(p^2+q^2)\,Arctg\frac{q}{p}$$

24) $$\int\left\{qe^{-px}-\frac{1}{x}Sin\,qx.e^{-rx}\right\}\frac{dx}{x}=\frac{q}{2}l\frac{q+r^2}{q^2}+r\,Arctg\frac{q}{r}-q$$

Sur 22) à 24) voyez Winckler, Sitz. Ber. Wien. 21, 38.

25) $$\int\frac{Sin^2 qx-Sin^2 rx}{x^2}e^{-px}dx=q\,Arctg\frac{2q}{p}-r\,Arctg\frac{2r}{p}+\frac{p}{4}l\frac{p^2+4r^2}{p^2+4q^2}$$ V. T. 368, N. 26.

26) $$\int\frac{Cos^2 qx-Cos^2 rx}{x^2}e^{-px}dx=r\,Arctg\frac{2r}{p}-q\,Arctg\frac{2q}{p}+\frac{p}{4}l\frac{p^2+4q^2}{p^2+4r^2}$$ (VIII, 361).

1) $\int e^{-px^2} Sin\left(\frac{2q^2}{x^2}\right)\frac{dx}{x^2} = e^{-2pq}\frac{Sin 2pq + Cos 2pq}{4q}\sqrt{\pi}$ V. T. 268, N. 12.

2) $\int e^{-px^2} Cos\left(\frac{2q^2}{x^2}\right)\frac{dx}{x^2} = e^{-2pq}\frac{Cos 2pq - Sin 2pq}{4q}\sqrt{\pi}$ V. T. 268, N. 13.

3) $\int e^{-\frac{1}{x^2}} Sin(2p^2x^2)\frac{dx}{x^2} = \frac{1}{2}e^{-2p} Sin 2p . \sqrt{\pi}$ V. T. 263, N. 12.

4) $\int e^{-\frac{1}{x^2}} Cos(2p^2x^2)\frac{dx}{x^2} = \frac{1}{2}e^{-2p} Cos 2p . \sqrt{\pi}$ V. T. 263, N. 13.

5) $\int e^{-px^2 - \frac{q^2}{x^2}} Sin\left(\frac{r}{x^2}\right)\frac{dx}{x^2} = \frac{1}{2}e^{-2pg}\sqrt{\frac{\pi}{q^2+r^2}} . (f Cos 2fp + g Sin 2fp)$ V. T. 268, N. 14.

6) $\int e^{-px^2 - \frac{q^2}{x^2}} Cos\left(\frac{r}{x^2}\right)\frac{dx}{x^2} = \frac{1}{2}e^{-2pg}\sqrt{\frac{\pi}{q^2+r^2}} . (g Cos 2fp - f Sin 2fp)$ V. T. 268, N. 15.

7) $\int e^{-\frac{1}{4}q^2x^2 - \frac{p^2}{x^2}Cos 2\lambda} Sin\left(\frac{p^2}{x^2} Sin 2\lambda\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2p} e^{-pq Cos\lambda} Sin(\lambda + pq Cos\lambda)$ V. T. 268, N. 16.

8) $\int e^{-\frac{1}{4}q^2x^2 - \frac{p^2}{x^2}Cos 2\lambda} Cos\left(\frac{p^2}{x^2} Sin 2\lambda\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2p} e^{-pq Cos\lambda} Cos(\lambda + pq Sin\lambda)$ V. T. 268, N. 17.

9) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Sin\left\{s\left(x^2+\frac{1}{x^2}\right)\right\}\frac{dx}{x^2} = \frac{1}{2}\sqrt{\frac{\pi Cos 2\beta}{q}} . e^{-2p} Sin(\beta + 2 Tg 2\beta)$ V. T. 268, N. 20.

10) $\int e^{-q\left(x^2+\frac{1}{x^2}\right)} Cos\left\{s\left(x^2+\frac{1}{x^2}\right)\right\}\frac{dx}{x^2} = \frac{1}{2}\sqrt{\frac{\pi Cos 2\beta}{q}} . e^{-2p} Cos(\beta + 2 Tg 2\beta)$ V. T. 268, N. 21.

11) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2 + \frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha+\beta)} Sin\{2ab Sin(\alpha+\beta)+\alpha\}$

V. T. 268, N. 22.

12) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2 + \frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha+\beta)} Cos\{2ab Sin(\alpha+\beta)+\alpha\}$

V. T. 268, N. 23.

13) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Sin\left(rx^2 - \frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha-\beta)} Sin\{2ab Sin(\beta-\alpha)-\alpha\}$

V. T. 268, N. 24.

14) $\int e^{-\left(px^2+\frac{q}{x^2}\right)} Cos\left(rx^2 - \frac{s}{x^2}\right)\frac{dx}{x^2} = \frac{\sqrt{\pi}}{2a} e^{-2ab Cos(\alpha-\beta)} Cos\{2ab Sin(\alpha-\beta)+\alpha\}$

V. T. 268, N. 25.

15) $\int e^{-\left(p x^2+\frac{q}{x^2}\right)} Sin\, r x^2 . Sin \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab Cos(\alpha-\beta)} Cos \left\{ 2ab Sin(\alpha-\beta)+\alpha \right\} - \right.$

$\left. - e^{-2ab Cos(\alpha+\beta)} Cos \left\{ 2ab Sin(\alpha+\beta)+\alpha \right\} \right\}$ V. T. 268, N. 26.

16) $\int e^{-\left(p x^2+\frac{q}{x^2}\right)} Sin\, r x^2 . Cos \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab Cos(\alpha+\beta)} Sin \left\{ 2ab Sin(\alpha+\beta)+\alpha \right\} - \right.$

$\left. - e^{-2ab Cos(\alpha-\beta)} Sin \left\{ 2ab Sin(\alpha-\beta)+\alpha \right\} \right\}$ V. T. 268, N. 27.

17) $\int e^{-\left(p x^2+\frac{q}{x^2}\right)} Cos\, r x^2 . Sin \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab Cos(\alpha+\beta)} Sin \left\{ 2ab Sin(\alpha+\beta)+\alpha \right\} + \right.$

$\left. + e^{-2ab Cos(\alpha-\beta)} Sin \left\{ 2ab Sin(\alpha-\beta)+\alpha \right\} \right\}$ V. T. 268, N. 28.

18) $\int e^{-\left(p x^2+\frac{q}{x^2}\right)} Cos\, r x^2 . Cos \frac{s}{x^2} \frac{dx}{x^2} = \frac{\sqrt{\pi}}{4a} \left\{ e^{-2ab Cos(\alpha+\beta)} Cos \left\{ 2ab Sin(\alpha+\beta)+\alpha \right\} + \right.$

$\left. + e^{-2ab Cos(\alpha-\beta)} Cos \left\{ 2ab Sin(\alpha-\beta)+\alpha \right\} \right\}$ V. T. 268, N. 29.

Dans 6) à 18) on a $a^4 = p^2 + r^2$, $b^4 = q^2 + s^2$, $f = \sqrt{\frac{-p+\sqrt{p^2+r^2}}{2}}$,

$g = \sqrt{\frac{p+\sqrt{p^2+r^2}}{2}}$, $\alpha = \frac{1}{2} Arctg \frac{r}{p}$, $\beta = \frac{1}{2} Arctg \frac{s}{q}$.

19) $\int e^{-x^2} \frac{2x Cos x - Sin x}{x^2} Sin x\, dx = \frac{a-1}{2a} \sqrt{\pi}$ (IV, 509).

20) $\int e^{s Cos rx + s_1 Cos r_1 x + \dots} Sin(s Sin rx + s_1 Sin r_1 x + \dots) . Sin x \frac{dx}{x^2} = \frac{\pi}{2} (e^{s+s+\dots} - 1)$ (H, 16).

21) $\int e^{s Cos rx + x_1 Cos r_1 x + \dots} Sin(s Sin rx + s_1 Sin r_1 x + \dots + px) . Sin x \frac{dx}{x^2} = \frac{\pi}{2} e^{s+s_1+\dots}$ (H, 17).

22) $\int e^{t Cos ux + t_1 Cos u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\left\{ (sr + s_1 r_1 + \dots) x + t Sin ux + t_1 Sin u_1 x + \dots \right\} . Sin x \frac{dx}{x^2} =$

$= \frac{\pi}{2^{1+s+s_1+\dots}} \left\{ 2^{s+s_1+\dots} e^{t+t_1+\dots} - 1 \right\}$ (H, 20).

23) $\int e^{t Cos ux + t_1 Cos u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\left\{ (sr + s_1 r_1 + \dots + p) x + t Sin ux + t_1 Sin ux + \dots \right\} .$

$Sin x \frac{dx}{x^2} = \frac{\pi}{2} e^{t+t_1+\dots}$ (H, 23).

24) $\int e^{t\,Cos\,u\,x + t_1\,Cos\,u_1\,x + \dots}\,Sin^s\,r\,x\,.\,Sin^{s_1}\,r_1\,x\dots Cos^q\,p\,x\,.\,Cos^{q_1}\,p_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\dots+sr+s_1r_1+\dots)x - t\,Sin\,u\,x - t_1\,Sin\,u_1\,x - \dots\right\}.\,Sin\,x\,\frac{dx}{x^2} =$

$= \frac{\pi}{2^{1+q+q_1+\dots+s+s_1+\dots}}$ (H, 22).

25) $\int e^{t\,Cos\,u\,x + t_1\,Cos\,u_1\,x + \dots}\,Sin^s\,r\,x\,.\,Sin^{s_1}\,r_1\,x\dots Cos^q\,p\,x\,.\,Cos^{q_1}\,p_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1p_1+\dots+sr+s_1r_1+\dots+w)x - t\,Sin\,u\,x - t_1\,Sin\,u_1\,x - \dots\right\}.\,Sin\,x\,\frac{dx}{x^2} = 0$

(H, 23).

F. Alg. rat. fract. à dén. x^3, x^4;
Exponentielle; TABLE 370. Lim. 0 et ∞.
Circul. Directe.

1) $\int e^{-px}\,Sin\,q\,x\,.\,Sin\,r\,x\,.\,Sin\,s\,x\,\frac{dx}{x^3} = \frac{(q+r+s)^2-p^2}{8}\,Arctg\,\frac{q+r+s}{p} - \frac{(q-r+s)^2-p^2}{8}$

$Arctg\,\frac{q-r+s}{p} - \frac{(q+r-s)^2-p^2}{8}\,Arctg\,\frac{q+r-s}{p} + \frac{(q-r-s)^2-p^2}{8}\,Arctg\,\frac{q-r-s}{p} +$

$+ \frac{q-r+s}{8}\,p\,l\{p^2+(q-r+s)^2\} + \frac{q+r-s}{8}\,p\,l\{p^2+(q+r-s)^2\} - \frac{q+r+s}{8}$

$p\,l\{p^2+(q+r+s)^2\} - \frac{q-r-s}{8}\,p\,l\{p^2+(q-r-s)^2\}$ (VIII, 346).

2) $\int e^{-px}\,Sin^2\,q\,x\,.\,Sin\,r\,x\,\frac{dx}{x^3} = \frac{(2q+r)^2-p^2}{8}\,Arctg\,\frac{2q+r}{p} - \frac{(2q-r)^2-p^2}{8}\,Arctg\,\frac{2q-r}{p} +$

$+ \frac{p^2-r^2}{4}\,Arctg\,\frac{r}{p} + \frac{2q-r}{8}\,p\,l\{p^2+(2q-r)^2\} - \frac{2q+r}{8}\,p\,l\{p^2+(2q+r)^2\} +$

$+ \frac{1}{4}\,p\,r\,l(p^2+r^2)$ (VIII, 345).

3) $\int e^{-px}\,Sin^3\,q\,x\,\frac{dx}{x^3} = \frac{9q^2-p^2}{8}\,Arctg\,\frac{3q}{p} - 3\,\frac{p^2-q^2}{8}\,Arctg\,\frac{q}{p} + \frac{3pq}{8}\,l\,\frac{p^2+q^2}{p^2+9q^2}$ (VIII, 345).

4) $\int e^{-px}\,Sin^2\,q\,x\,.\,Sin\,r\,x\,.\,Cos\,s\,x\,\frac{dx}{x^3} = \frac{(2q+r+s)^2-p^2}{16}\,Arctg\,\frac{2q+r+s}{p} - \frac{(2q-r+s)^2-p^2}{16}$

$Arctg\,\frac{2q-r+s}{p} - \frac{(2q+r-s)^2-p^2}{16}\,Arctg\,\frac{2q+r-s}{p} + \frac{(2q-r-s)^2-p^2}{16}$

$$Arctg\frac{2q-r-s}{p}-\frac{(r+s)^2-p^2}{8}Arctg\frac{r+s}{p}-\frac{(r-s)^2-p^2}{8}Arctg\frac{r-s}{p}-$$

$$-\frac{2q+r+s}{16}pl\{p^2+(2q+r+s)^2\}+\frac{2q-r+s}{16}pl\{p^2+(2q-r+s)^2\}+$$

$$+\frac{2q+r-s}{16}pl\{p^2+(2q+r-s)^2\}-\frac{2q-r-s}{16}pl\{p^2+(2q-r-s)^2\}+$$

$$+\frac{r+s}{8}pl\{p^2+(r+s)^2\}+\frac{r-s}{8}pl\{p^2+(r-s)^2\}$$

5) $$\int e^{-px}Sin^3qx\,.\,Cos\,rx\frac{dx}{x^3}=\frac{(3q+r)^2-p^2}{16}Arctg\frac{3q+r}{p}+\frac{(3q-r)^2-p^2}{16}Arctg\frac{3q-r}{p}-$$

$$-3\frac{(q+r)^2-p^2}{16}Arctg\frac{q+r}{p}-3\frac{(q-r)^2-p^2}{16}Arctg\frac{q-r}{p}-\frac{3q+r}{16}pl\{p^2+(3q+r)^2\}-$$

$$-\frac{3q-r}{16}pl\{p^2+(3q-r)^2\}+\frac{q+r}{16}3pl\{p^2+(q+r)^2\}+\frac{q-r}{16}3pl\{p^2+(q-r)^2\}$$

6) $$\int e^{-px}Sin^4qx\frac{dx}{x^3}=\frac{1}{2}pq\,Arctg\frac{4q}{p}-pq\,Arctg\frac{2q}{p}-\frac{p^2-16q^2}{32}l(p^2+16q^2)+$$

$$+\frac{p^2-4q^2}{8}l(p^2+4q^2)-\frac{3p^2}{16}lp$$

7) $$\int e^{-px}Sin^2qx\,.\,Sin^2rx\,.\,Sin\,sx\frac{dx}{x^3}=\frac{(2q-2r-s)^2-p^2}{32}Arctg\frac{2q-2r-s}{p}+\frac{(2q+2r-s)^2-p^2}{32}$$

$$Arctg\frac{2q+2r-s}{p}-\frac{(2q-2r+s)^2-p^2}{32}Arctg\frac{2q-2r+s}{p}-\frac{(2q+2r+s)^2-p^2}{32}$$

$$Arctg\frac{2q+2r+s}{p}+\frac{(2q+s)^2-p^2}{16}Arctg\frac{2q+s}{p}-\frac{(2q-s)^2-p^2}{16}Arctg\frac{2q-s}{p}+$$

$$+\frac{(2r+s)^2-p^2}{16}Arctg\frac{2r+s}{p}-\frac{(2r-s)^2-p^2}{16}Arctg\frac{2r-s}{p}+\frac{p^2-s^2}{8}Arctg\frac{s}{p}+$$

$$+\frac{2q+2r+s}{32}pl\{p^2+(2q+2r+s)^2\}+\frac{2q-2r+s}{32}pl\{p^2+(2q-2r+s)^2\}-$$

$$-\frac{2q+2r-s}{32}pl\{p^2+(2q+2r-s)^2\}-\frac{2q-2r-s}{32}pl\{p^2+(2q-2r-s)^2\}-$$

$$-\frac{2q+s}{16}pl\{p^2+(2q+s)^2\}+\frac{2q-s}{16}pl\{p^2+(2q-s)^2\}-\frac{2r+s}{16}pl\{p^2+(2r+s)^2\}+$$

$$+\frac{2r-s}{16}pl\{p^2+(2r-s)^2\}-\frac{1}{8}psl(p^2+s^2)$$

8) $\int e^{-px} Sin^2 qx . Sin^3 rx \frac{dx}{x^3} = 3\frac{(2q+r)^2-p^2}{32} Arctg\frac{2q+r}{p} - 3\frac{(2q-r)^2-p^2}{32} Arctg\frac{2q-r}{p} - \frac{(2q+3r)^2-p^2}{32} Arctg\frac{2q+3r}{p} + \frac{(2q-3r)^2-p^2}{32} Arctg\frac{2q-3r}{p} + \frac{9r^2-p^2}{16} Arctg\frac{3r}{p} + 3\frac{p^2-r^2}{16} Arctg\frac{r}{p} + \frac{2q+3r}{32} p\, l\{p^2+(2q+3r)^2\} - \frac{2q-3r}{32} p\, l\{p^2+(2q-3r)^2\} - \frac{2q+r}{32} 3p\, l\{p^2+(2q+r)^2\} + \frac{2q-r}{32} 3p\, l\{p^2+(2q-r)^2\} + \frac{3}{16} pr\, l\frac{p^2+r^2}{p^2+9r^2}$

9) $\int e^{-px} Sin^3 qx . Cos^2 rx \frac{dx}{x^3} = \frac{(3q+2r)^2-p^2}{32} Arctg\frac{3q+2r}{p} + \frac{(3q-2r)^2-p^2}{32} Arctg\frac{3q-2r}{p} - 3\frac{(q+2r)^2-p^2}{32} Arctg\frac{q+2r}{p} - 3\frac{(q-2r)^2-p^2}{32} Arctg\frac{q-2r}{p} + \frac{9q^2-p^2}{16} Arctg\frac{3q}{p} + 3\frac{p^2-q^2}{16} Arctg\frac{q}{p} - \frac{3q+2r}{32} p\, l\{p^2+(3q+2r)^2\} - \frac{3q-2r}{32} p\, l\{p^2+(3q-2r)^2\} + \frac{q+2r}{32} 3p\, l\{p^2+(q+2r)^2\} + \frac{q-2r}{32} 3p\, l\{p^2+(q-2r)^2\} + \frac{3}{16} pq\, l\frac{p^2+q^2}{p^2+9q^2}$

10) $\int e^{-px} Sin^5 qx \frac{dx}{x^3} = 5\frac{p^2-q^2}{16} Arctg\frac{q}{p} + 5\frac{9q^2-p^2}{32} Arctg\frac{3q}{p} - \frac{25q^2-p^2}{32} Arctg\frac{5q}{p} + \frac{5pq}{16} l(p^2+q^2) - \frac{15pq}{32} l(p^2+9q^2) + \frac{5pq}{32} l(p+25q^2)$

Sur 4) à 10) voyez E. O. A.

11) $\int e^{s\, Cos\, rx + s_1 Cos\, r_1 x + \dots} Sin(s\, Sin\, rx + s_1 Sin\, r_1 x + \dots) . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2}\left\{e^{s+s_1+\dots} - 1 - \frac{1}{4}(s+s_1+\dots)\right\}$ (H, 16).

12) $\int e^{s\, Cos\, rx + s_1 Cos\, r_1 x + \dots} Sin(s\, Sin\, rx + s_1 Sin\, r_1 x + \dots + px) . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2}\left\{e^{s+s_1+\dots} - \frac{1}{4}\right\}$ (H, 17).

13) $\int e^{t\, Cos\, ux + t_1 Cos\, u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 + \dots)x + t\, Sin\, ux + t_1 Sin\, u_1 x + \dots\} . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{1+s+s_1+\dots}}\left\{2^{s+s_1+\dots} e^{t+t_1+\dots} - 1 - \frac{1}{4}(s+s_1+\dots+t+t_1+\dots)\right\}$ (H, 20).

14) $\int e^{t\, Cos\, ux + t_1 Cos\, u_1 x + \dots} Cos^s rx . Cos^{s_1} r_1 x \dots Sin\{(sr + s_1 r_1 + \dots + p)x + t\, Sin\, ux + t_1 Sin\, u_1 x + \dots\} . Sin^2 x \frac{dx}{x^3} = \frac{\pi}{2^{3+s+s_1+\dots}}\left\{2^{2+s+s_1+\dots} e^{t+t_1+\dots} - 1\right\}$ (H, 23).

15) $\int e^{t\, Cos\, u x + t_1\, Cos\, u_1 x + \ldots} Sin^s r x . Sin^{s_1} r_1 x \ldots Cos^q p x . Cos^{q_1} p_1 x \ldots Sin \left\{(s+s_1+\ldots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1 p_1+\ldots+sr+s_1 r_1+\ldots)x - t\, Sin\, u x - t_1\, Sin\, u_1 x - \ldots\right\}. Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\ldots+s+s_1+\ldots}} \{4+q+q_1+\ldots+s+s_1+\ldots+t+t_1+\ldots\}$ (H, 22).

16) $\int e^{t\, Cos\, u x + t_1\, Cos\, u_1 x + \ldots} Sin^s r x . Sin^{s_1} r_1 x \ldots Cos^q p x . Cos^{q_1} p_1 x \ldots Sin \left\{(s+s_1+\ldots)\frac{1}{2}\pi - \right.$

$\left. -(qp+q_1 p_1+\ldots+sr+s_1 r_1+\ldots+w)x - t\, Sin\, u x - t_1\, Sin\, u_1 x - \ldots\right\}. Sin^2 x \frac{dx}{x^3} =$

$= \frac{\pi}{2^{3+q+q_1+\ldots+s+s_1+\ldots}}$ (H, 24).

17) $\int e^{-px} Sin^4 q x \frac{dx}{x^4} = \frac{16q^3-3p^2q}{12} Arctg \frac{4q}{p} - \frac{4q^3-3p^2q}{6} Arctg \frac{2q}{p} - \frac{48pq^2-p^3}{96}$

$l(p^2+16q^2) + \frac{12pq^2-p^3}{24} l(p^2+4q^2) + \frac{1}{16} p^3\, lp$ (E. O. A.).

F. Alg. rat. fract. à dén. x^p;
Exponentielle; TABLE 371. Lim. 0 et ∞.
Circul. Directe.

1) $\int e^{-qx} Sin\, r x \frac{dx}{x^p} = \frac{\Gamma(1-p)}{(q^2+r^2)^{\frac{1}{2}(1-p)}} Sin \left\{(1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 440*).

2) $\int e^{-qx} Cos\, r x \frac{dx}{x^p} = \frac{\Gamma(1-p)}{(q^2+r^2)^{\frac{1}{2}(1-p)}} Cos \left\{(1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 440*).

3) $\int e^{-qx} Sin \left\{r\left(\frac{\pi}{2}+x\right)\right\} \frac{dx}{x^p} = \frac{\pi}{\Gamma(p)} \frac{(q^2+r^2)^{\frac{1}{2}(p-1)}}{Sin\, p\pi} Sin \left\{\frac{1}{2}p\pi + (1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 540).

4) $\int e^{-qx} Cos \left\{r\left(\frac{\pi}{2}+x\right)\right\} \frac{dx}{x^p} = \frac{\pi}{\Gamma(p)} \frac{(q^2+r^2)^{\frac{1}{2}(p-1)}}{Sin\, p\pi} Cos \left\{\frac{1}{2}p\pi + (1-p) Arctg \frac{r}{q}\right\}$ $[p<1]$ (VIII, 540).

5) $\int e^{-px} Sin\, q_0 x . Sin\, q_1 x \ldots Sin\, q_a x . \frac{dx}{x^{a+1}} = \frac{1}{2^a\, 1^{a/1}} (cy-p)^a$ (VIII, 346).

Où toutes les puissances $a, a-2, a-4, \ldots$ de y doivent être remplacées par $Arctg \frac{c}{p}$; les autres puissances, $a-1$, $a-3, \ldots$ au contraire par $\frac{1}{2} l(p^2+c^2)$. Pour c il faut mettre successivement toutes les sommes possibles des $a+1$ éléments $q_0, q_1 \ldots q_a$, en employant le signe $-$ tout aussi bien que le signe $+$. (VIII, 346).

6) $\int (e^{-px}\, Sin\, qx - e^{-rx}\, Sin\, sx)\frac{dx}{x^{t+1}} = \frac{\Gamma(1-t)}{t}\Big\{(p^2+q^2)^{\frac{1}{2}t}\, Sin\Big(t\, Arctg\frac{q}{p}\Big) -$

$- (r^2+s^2)^{\frac{1}{2}t}\, Sin\Big(t\, Arctg\frac{s}{r}\Big)\Big\}$ (IV, 509).

7) $\int (e^{-px}\, Cos\, qx - e^{-rx}\, Cos\, sx)\frac{dx}{x^{t+1}} = \frac{\Gamma(1-t)}{t}\Big\{(r^2+s^2)^{\frac{1}{2}t}\, Cos\Big(t\, Arctg\frac{s}{r}\Big) -$

$- (p^2+q^2)^{\frac{1}{2}t}\, Cos\Big(t\, Arctg\frac{q}{p}\Big)\Big\}$ (IV, 509).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme; TABLE 372. Lim. 0 et ∞.
Circ. Dir. à un ou deux facteurs.

1) $\int e^{r\, Cos\, sx}\, Sin(r\, Sin\, sx)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}(e^{re^{-qs}} - 1)$ (VIII, 498).

2) $\int e^{r\, Cos\, sx}\, Cos(r\, Sin\, sx)\frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{re^{-qs}}$ (VIII, 497).

3) $\int e^{r\, Cos\, sx}\, Sin\,(r\, Sin\, sx + px)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2} e^{-pq+re^{-qs}}$ (VIII, 498).

4) $\int e^{r\, Cos\, sx}\, Cos\,(r\, Sin\, sx + px)\frac{dx}{q^2+x^2} = \frac{\pi}{2q} e^{-pq+re^{-qs}}$ (VIII, 498).

5) $\int e^{Cos\, sx}\, Sin\Big(\frac{1}{2}a\pi - Sin\, sx\Big)\frac{x^{a-1}}{q^2+x^2}\,dx = \frac{\pi}{2q} q^{a-1} e^{e^{-qs}}$ (IV, 509).

6) $\int e^{r\, Cos\, sx}\, Sin(r\, Sin\, sx)\,.\, Sin\, px\frac{dx}{q^2+x^2} = \frac{\pi}{4q}(e^{pq} - e^{-pq})e^{re^{-qs}} - \frac{\pi}{4q}e^{pq}\sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} +$

$+ \frac{\pi}{4q} e^{-pq}\sum_0^d \frac{r^n}{1^{n/1}} e^{nqs}$ (VIII, 498).

7) $\int e^{r\, Cos\, sx}\, Sin(r\, Sin\, sx)\,.\, Cos\, px\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}(e^{pq} + e^{-pq})e^{re^{-qs}} - \frac{\pi}{4}e^{pq}\sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} -$

$- \frac{\pi}{4}e^{-pq}\sum_0^d \frac{r^n}{1^{n/1}} e^{nqs}\Big[\frac{p}{s}\text{ fractionn.}\Big], = \frac{\pi}{4}(e^{pq}+e^{-pq})e^{re^{-qs}} - \frac{\pi}{4}e^{pq}\sum_0^{d-1}\frac{r^n}{1^{n/1}}e^{-nqs} -$

$- \frac{\pi}{4}e^{-pq}\sum_0^d \frac{1^{n/1}}{r^n} e^{nqs}\Big[\frac{p}{s}\text{ entier}\Big]$ (VIII, 498).

8) $\int e^{r\, Cos\, sx}\, Cos(r\, Sin\, sx)\,.\, Sin\, px\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}(e^{-pq} - e^{pq})e^{re^{-qs}} + \frac{\pi}{4}e^{pq}\sum_0^d \frac{r^n}{1^{n/1}} e^{-nqs} +$

$$+\frac{\pi}{4}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs}\left[\frac{p}{s}\text{ fractionn.}\right], = \frac{\pi}{4}(e^{-pq}-e^{pq})e^{re^{-qs}}+\frac{\pi}{4}e^{pq}\sum_0^{d-1}\frac{r^n}{1^{n/1}}e^{-nqs}+$$

$$+\frac{\pi}{4}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs}\left[\frac{p}{s}\text{ entier}\right] \text{ (VIII, 497).}$$

9) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}+e^{-pq})e^{re^{-qs}}-\frac{\pi}{4q}e^{pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{-nqs}+$$

$$+\frac{\pi}{4q}e^{-pq}\sum_0^d\frac{r^n}{1^{n/1}}e^{nqs} \text{ (VIII, 497).}$$

$\left[\text{Dans 5) à 7) on a } d=\mathcal{E}\frac{p}{s}\right]$

10) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{re^{-qs}}-1)\,[s>2a], =$$

$$=\frac{(-1)^a\pi}{2^{2a+1}}\left\{(e^q-e^{-q})^{2a}(e^{re^{-qs}}-1)-r\right\}[s=2a] \text{ (V, 91).}$$

11) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left[e^{-(2a+1)q}\left\{(1-e^{(2a+1)2q})\right.\right.$$

$$\left.\left.(1-e^{-2q})^{2a+1}-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\right\}+(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-1)\right]$$

$$[s>2a+1], = \frac{(-1)^{a-1}\pi}{2^{2a+2}}\left[e^{-(2a+1)q}\left\{(1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1}-\right.\right.$$

$$\left.\left.-2\sum_0^a(-1)^n\binom{2a+1}{n}e^{2nq}\right\}+(e^q-e^{-q})^{2a+1}(e^{re^{-(2a+1)q}}-1)-r\right][s=2a+1] \text{ (V, 92).}$$

12) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos^{2a}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q}\left\{\binom{2a}{a}+2\sum_1^a\binom{2a}{n+a}e^{-2nq}+\right.$$

$$\left.+(e^q+e^{-q})^{2a}(e^{re^{-qs}}-1)\right\}[s\geqq 2a] \text{ (V, 91).}$$

13) $$\int e^{r\,Cos\,sx}\,Cos\,(r\,Sin\,sx)\,.\,Cos^{2a+1}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+2}q}\left\{2\sum_0^a\binom{2a+1}{n+a+1}e^{-(2n+1)q}+\right.$$

$$\left.+(e^q+e^{-q})^{2a+1}(e^{re^{-qs}}-1)\right\}[s\geqq 2a+1] \text{ (V, 91).}$$

14) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Tg\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1-e^{-2qs}}{1+e^{-2qs}}(e^{re^{-qs}}-e^r) \text{ (H, 154).}$$

15) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx)\,.\,Cot\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1+e^{-2qs}}{1-e^{-2qs}}(e^r-e^{re^{-qs}}) \text{ (H, 154).}$$

16) $$\int e^{r\,Cos\,sx}\,Sin\,(r\,Sin\,sx+sx)\,.\,Tg\,sx\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,\frac{1-e^{-2qs}}{1+e^{-2qs}}(e^{re^{-qs}-qs}-e^r) \text{ (H, 155).}$$

17) $\int e^{r\,Cos\,s\,x}\,Sin\,(r\,Sin\,s\,x+s\,x)\,.\,Cot\,s\,x\,\frac{d\,x}{q^2+x^2}=\frac{\pi}{2\,q}\,\frac{1+e^{-2\,q\,s}}{1-e^{-2\,q\,s}}\left(e^r-e^{r\,e^{-q\,s}-q\,s}\right)$ (H, 155).

18) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x+s\,x)\,.\,Tg\,s\,x\,\frac{x\,d\,x}{q^2+x^2}=-\pi\,\frac{e^{r-2\,q\,s}}{1+e^{-2\,q\,s}}-\frac{\pi}{2}\,\frac{1-e^{-2\,q\,s}}{1+e^{-2\,q\,s}}\,e^{r\,e^{-q\,s}-q\,s}$ (H, 155).

19) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x+s\,x)\,.\,Cot\,s\,x\,\frac{x\,d\,x}{q^2+x^2}=-\pi\,\frac{e^{r-2\,q\,s}}{1-e^{-2\,q\,s}}+\frac{\pi}{2}\,\frac{1+e^{-2\,q\,s}}{1-e^{-2\,q\,s}}\,e^{r\,e^{-q\,s}-q\,s}$ (H, 155).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle monôme; TABLE 373. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

1) $\int e^{r\,Cos\,s\,x}\,Sin\,(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2\,a+1}\,x\,\frac{x\,d\,x}{q^2+x^2}=\frac{(-1)^{a-1}\,\pi}{2^{2\,a+3}}\,(e^q-e^{-q})^{2\,a+1}\,(e^{p\,q}-e^{-p\,q})$ $(e^{r\,e^{-q\,s}}-1)\,[p<s-2\,a-1],=\frac{(-1)^{a-1}\,\pi}{2^{2\,a+3}}\,\left\{(e^q-e^{-q})^{2\,a+1}\,(e^{p\,q}-e^{-p\,q})\right.$ $\left.(e^{r\,e^{-q\,s}}-1)-r\right\}\,[p=s-2\,a-1]$ (V, 94).

2) $\int e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2\,a}\,x\,\frac{x\,d\,x}{q^2+x^2}=\frac{(-1)^a\,\pi}{2^{2\,a+2}}\,(e^q-e^{-q})^{2\,a}\,\left\{2\,e^{-p\,q}-(e^{p\,q}-e^{-p\,q})\right.$ $\left.(e^{r\,e^{-q\,s}}-1)\right\}\,[2\,p>4\,a<s],=\frac{(-1)^a\pi}{2^{2\,a+2}}\left[(e^q-e^{-q})^{2\,a}\left\{2\,e^{-p\,q}-(e^{p\,q}-e^{-p\,q})(e^{r\,e^{-q\,s}}-1)\right\}-\right.$ $\left.-2\,e^{(2\,a-p)\,q}\sum_0^{d-1}(-1)^n\binom{2\,a}{n}e^{-2\,n\,q}-2\,e^{(p-2\,a)\,q}\sum_0^{d}(-1)^n\binom{2\,a}{n}e^{2\,n\,q}\right][s>2\,p<4\,a,\,p\text{ ent.}],=$ $=\frac{(-1)^a\,\pi}{2^{2\,a+2}}\left[(e^q-e^{-q})^{2\,a}\,\left\{2\,e^{-p\,q}-(e^{p\,q}-e^{-p\,q})\,(e^{r\,e^{-q\,s}}-1)\right\}-2\,e^{(2\,a-p)\,q}\sum_0^{d}(-1)^n\binom{2\,a}{n}\right.$ $\left.e^{-2\,n\,q}-2\,e^{(p-2\,a)\,q}\sum_0^{d}(-1)^n\binom{2\,a}{n}e^{2\,n\,q}\right][s>2\,p<4\,a,\,p\text{ fractionn.}],=\frac{(-1)^a\pi}{2^{2\,a+2}}\left[(e^q-e^{-q})^{2\,a}\right.$ $\left.\left\{2\,e^{-p\,q}-(e^{p\,q}-e^{-p\,q})(e^{r\,e^{-q\,s}}-1)\right\}+r\right][2\,s-4\,a=2\,p>s>4\,a],=\frac{(-1)^a\pi}{2^{2\,a+2}}\left[(e^q-e^{-q})^{2\,a}\right.$ $\left\{2\,e^{-p\,q}-(e^{p\,q}-e^{-p\,q})\,(e^{r\,e^{-q\,s}}-1)\right\}+r-2\,e^{(2\,a-p)\,q}\sum_0^{d-1}(-1)^n\binom{2\,a}{n}e^{-2\,n\,q}-2\,e^{(p-2\,a)\,q}$ $\left.\sum_0^{d}(-1)^n\binom{2\,a}{n}e^{2\,n\,q}\right][2\,s-4\,a=2\,p<s<4\,a,\,p\text{ entier}],=\frac{(-1)^a\pi}{2^{2\,a+2}}\left[(e^q-e^{-q})^{2\,a}\left\{2\,e^{-p\,q}-\right.\right.$ $\left.-(e^{p\,q}-e^{-p\,q})\,(e^{r\,e^{-q\,s}}-1)\right\}+r-2\,e^{(2\,a-p)\,q}\sum_0^{d}(-1)^n\binom{2\,a}{n}e^{-2\,n\,q}-2\,e^{(p-2\,a)\,q}\sum_0^{d}(-1)^n$ $\left.\binom{2\,a}{n}e^{2\,n\,q}\right]\,[2\,s-4\,a=2\,p<s<4\,a,p\text{ fractionn.}]\left[d=\mathcal{E}'\left(a-\frac{1}{2}p\right)\right]$ (V, 93).

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3) $\int e^{r\,Cos\,s\,x} Sin(r\,Sin\,s\,x) \,.\, Cos\,p\,x \,.\, Sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1)$

$[p < s - 2a]$, $= \frac{(-1)^a \pi}{2^{2a+2}} \{ (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) - r \} \; [p = s - 2a]$

(V, 93).

4) $\int e^{r\,Cos\,s\,x} Sin(r\,Sin\,s\,x) \,.\, Sin\,p\,x \,.\, Cos^a x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2a+2} q} (e^q + e^{-q})^a (e^{pq} - e^{-pq}) (e^{r e^{-qs}} - 1)$

$[p \leqq s - a]$ (V, 92).

5) $\int e^{r\,Cos\,s\,x} Cos(r\,Sin\,s\,x) \,.\, Cos\,p\,x \,.\, Sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+3}} (e^q - e^{-q})^{2a+1} \{ 2 e^{-pq} +$

$+ (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} \; [2p > 4a + 2 > s]$, $= \frac{(-1)^{a-1} \pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1} \{ 2 e^{-pq} +$

$+ (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} - 2 e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q}$

$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big] \; [s > 2p < 4a + 2, \; p$ entier$]$, $= \frac{(-1)^{a-1} \pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1}$

$\{ 2 e^{-pq} + (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} - 2 e^{(2a+1-p)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q}$

$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big] [s > 2p < 4a + 2, \; p$ fractionn.$]$, $= \frac{(-1)^{a-1} \pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1}$

$\{ 2 e^{-pq} + (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} - r \Big] \; [2s - 4a - 2 = 2p > s > 4a + 2]$, $= \frac{(-1)^{a-1} \pi}{2^{2a+3}}$

$\Big[(e^q - e^{-q})^{2a+1} \{ 2 e^{-pq} + (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} - r - 2 e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n$

$\binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big] [2s - 4a - 2 = 2p < s < 4a + 2,$

p entier$]$, $= \frac{(-1)^{a-1} \pi}{2^{2a+3}} \Big[(e^q - e^{-q})^{2a+1} \{ 2 e^{-pq} + (e^{pq} + e^{-pq}) (e^{r e^{-qs}} - 1) \} - r -$

$- 2 e^{(2a+1-p)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big] [2s - 4a - 2 =$

$= 2p < s < 4a + 2, \; p$ fractionn.$]$ $\Big[d = \mathcal{E} \frac{1}{2} (2a + 1 - p) \Big]$ (V, 94).

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6) $$\int e^{r\,Cos\,s\,x}\,Cos(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Cos^a\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a\left\{2\,e^{-p\,q}+(e^{p\,q}+e^{-p\,q})\left(e^{r\,e^{-q\,s}}-1\right)\right\}\left[2p \geqq 2\,a \leqq s\right],=\frac{\pi}{2^{a+2}q}\left[2\left\{(e^q+e^{-q})^a\,e^{-p\,q}-e^{(a-p)q}\sum_0^d\binom{a}{n}e^{-2nq}+e^{(p-a)q}\sum_0^d\binom{a}{n}e^{2nq}\right\}+(e^q+e^{-q})^a(e^{p\,q}+e^{-p\,q})\left(e^{r\,e^{-q\,s}}-1\right)\right]\left[2a>2p\leqq s\right]$$
$$\left[d=\mathcal{E}\,\frac{1}{2}(a-p)\right] \text{ (V, 92).}$$

7) $$\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}\,s\,x\,.\,Cos^{p-1}\,s\,x\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r+2)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{dx}{q^2+x^2}=$$
$$=\frac{-\pi\,e^{-4\,q\,s}}{2^{p+r-1}q}(1+e^{-2\,q\,s})^{p-1}(1-e^{-2\,q\,s})^{r-1}e^{t\,e^{-2\,q\,s}} \text{ (H, 167).}$$

8) $$\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}\,s\,x\,.\,Cos^{p-1}\,s\,x\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r+2)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{\pi\,e^{-4\,q\,s}}{2^{p+r-1}}(1+e^{-2\,q\,s})^{p-1}(1-e^{-2\,q\,s})^{r-1}e^{t\,e^{-2\,q\,s}} \text{ (H, 167).}$$

9) $$\int e^{t\,Cos\,2\,s\,x}\,Cos^r\,s\,x\,.\,Sin(s\,r\,x+t\,Sin\,2\,s\,x)\,.\,Tg\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1-e^{-4\,q\,s}}{1+e^{-4\,q\,s}}$$
$$\left\{(1+e^{-2\,q\,s})^r\,e^{t\,e^{-2\,q\,s}}-2^r\,e^t\right\} \text{ (H, 158).}$$

10) $$\int e^{t\,Cos\,2\,s\,x}\,Cos^r\,s\,x\,.\,Sin(s\,r\,x+t\,Sin\,2\,s\,x)\,.\,Cot\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1+e^{-4\,q\,s}}{1-e^{-4\,q\,s}}$$
$$\left\{2^r\,e^t-(1+e^{-2\,q\,s})^r\,e^{t\,e^{-2\,q\,s}}\right\} \text{ (H, 158).}$$

11) $$\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}s\,x\,.\,Cos^{p-1}s\,x\,.\,Sin\left\{\frac{1}{2}r\pi-(p+r)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{dx}{q^2+x^2}=$$
$$=\frac{\pi\,e^{-2\,q\,s}}{2^{p+r-1}q}(1+e^{-2\,q\,s})^{p-1}(1-e^{-2\,q\,s})^{r-1}e^{t\,e^{-2\,q\,s}} \text{ (H, 160).}$$

12) $$\int e^{t\,Cos\,2\,s\,x}\,Sin^{r-1}\,s\,x\,.\,Cos^{p-1}\,s\,x\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r)\,s\,x-t\,Sin\,2\,s\,x\right\}\frac{x\,dx}{q^2+x^2}=$$
$$=\frac{\pi\,e^{-2\,q\,s}}{2^{p+r-1}}(1+e^{-2\,q\,s})^{p-1}(1-e^{-2\,q\,s})^{r-1}e^{t\,e^{-2\,q\,s}} \text{ (H, 160).}$$

13) $$\int e^{t\,Cos\,2\,s\,x}\,Cos^r\,s\,x\,.\,Sin\left\{(r+2)\,s\,x+t\,Sin\,2\,s\,x\right\}.\,Tg\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1-e^{-4\,q\,s}}{1+e^{-4\,q\,s}}$$
$$\left\{(1+e^{-2\,q\,s})^r\,e^{t\,e^{-2\,q\,s}-2\,q\,s}-2^r\,e^t\right\} \text{ (H, 164).}$$

14) $$\int e^{t\,Cos\,2\,s\,x}\,Cos^r\,s\,x\,.\,Sin\left\{(r+2)\,s\,x+t\,Sin\,2\,s\,x\right\}.\,Cot\,2\,s\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{r+1}q}\,\frac{1+e^{-4\,q\,s}}{1-e^{-4\,q\,s}}$$
$$\left\{2^r\,e^t-(1+e^{-2\,q\,s})^r\,e^{t\,e^{-2\,q\,s}-2\,q\,s}\right\} \text{ (H, 164).}$$

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15) $$\int e^{t\, Cos\, 2sx}\, Cos^r\, sx \,.\, Cos\left\{(r+2)sx + t\, Sin\, 2sx\right\} .\, Tg\, 2sx \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{1+e^{-4qs}}$$
$$\left\{e^{t-4qs} + 2^{-r-1}(1-e^{-2qs})(1+e^{-2qs})^{r+1} e^{te^{-2qs}-2qs}\right\} \quad \text{(H, 164).}$$

16) $$\int e^{t\, Cos\, 2sx}\, Cos^r\, sx \,.\, Cos\left\{(r+2)sx + t\, Sin\, 2sx\right\} .\, Cot\, 2sx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{1-e^{-4qs}}$$
$$\left\{-e^{t-4qs} + 2^{-r-1}(1+e^{-4qs})(1+e^{-2qs})^{r} e^{te^{-2qs}-2qs}\right\} \quad \text{(H, 164).}$$

17) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Sin\left\{\frac{1}{2}r\pi - (p+r)sx - t\, Sin\, 2sx\right\} .\, Tg\, 2sx \frac{dx}{q^2+x^2} =$$
$$= \frac{-\pi}{2^{p+r+1}q}\, \frac{1}{1+e^{-4qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1} e^{te^{-2qs}} \quad \text{(H, 160).}$$

18) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Sin\left\{\frac{1}{2}r\pi - (p+r)sx - t\, Sin\, 2sx\right\} .\, Cot\, 2sx \frac{dx}{q^2+x^2} =$$
$$= \frac{\pi}{2^{p+r+1}q}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1} e^{te^{-2qs}} \quad \text{(H, 160).}$$

19) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Cos\left\{\frac{1}{2}r\pi - (p+r)sx - t\, Sin\, 2sx\right\} .\, Tg\, 2sx \frac{x\,dx}{q^2+x^2} =$$
$$= \frac{-\pi}{2^{p+r+1}}\, \frac{1}{1+e^{-4qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1} e^{te^{-2qs}} \quad \text{(H, 160).}$$

20) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Cos\left\{\frac{1}{2}r\pi - (p+r)sx - t\, Sin\, 2sx\right\} .\, Cot\, 2sx \frac{x\,dx}{q^2+x^2} =$$
$$= \frac{\pi}{2^{p+r+1}}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1} e^{te^{-2qs}} \quad \text{(H, 160).}$$

21) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Sin\left\{\frac{1}{2}r\pi - (p+r+2)sx - t\, Sin\, 2sx\right\} .\, Tg\, 2sx \frac{dx}{q^2+x^2} =$$
$$= \frac{\pi}{2^{p+r+1}q}\, \frac{1}{e^{2qs}+e^{-2qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1} e^{te^{-2qs}} \quad \text{(H, 167).}$$

22) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Sin\left\{\frac{1}{2}r\pi - (p+r+2)sx - t\, Sin\, 2sx\right\} .\, Cot\, 2sx \frac{dx}{q^2+x^2} =$$
$$= \frac{-\pi}{2^{p+r+1}q}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1} e^{te^{-2qs}-2qs} \quad \text{(H, 167).}$$

23) $$\int e^{t\, Cos\, 2sx}\, Sin^r\, sx \,.\, Cos^p\, sx \,.\, Cos\left\{\frac{1}{2}r\pi - (p+r+2)sx - t\, Sin\, 2sx\right\} .\, Tg\, 2sx \frac{x\,dx}{q^2+x^2} =$$
$$= \frac{-\pi}{2^{p+r+1}}\, \frac{1}{e^{2qs}+e^{-2qs}}(1+e^{-2qs})^{p+1}(1-e^{-2qs})^{r+1} e^{te^{-2qs}} \quad \text{(H, 167).}$$

24) $\int e^{t\,Cos\,2sx}\,Sin^r sx\,.\,Cos^p sx\,.\,Cos\left\{\frac{1}{2}r\pi-(p+r+2)sx-t\,Sin\,2sx\right\}.\,Cot\,2sx\,\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{p+r+1}}(1+e^{-4qs})(1+e^{-2qs})^{p-1}(1-e^{-2qs})^{r-1}e^{te^{-2qs}-2qs}$ (H, 167).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponent. à expos. polynôme; TABLE 374. Lim. 0 et ∞.
Circul. Directe.

1) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Sin\left\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{e^{re^{-qs}+r_1e^{-qs_1}+\dots}-1\right\}$
(H, 64).

2) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Cos\left\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{re^{-qs}+r_1e^{-qs_1}+\dots}$
(H, 64).

3) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Sin\left\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots+px\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}e^{re^{-qs}+r_1e^{-qs_1}+\dots-qp}$
(H, 68).

4) $\int e^{r\,Cos\,sx+r_1\,Cos\,s_1x+\dots}\,Cos\left\{r\,Sin\,sx+r_1\,Sin\,s_1x+\dots+px\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{re^{-qs}+r_1e^{-qs_1}+\dots-qp}$
(H, 68).

5) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}}\left\{(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots}-e^{t+\dots}\right\}$ (H, 72).

6) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$

$\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}q}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots}$ (H, 72).

7) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux+\dots\right\}$

$\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots-qw}$ (H, 77).

8) $\int e^{t\,Cos\,ux+\dots}\,Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux+\dots\right\}$

$\frac{dx}{q^2+x^2}=\frac{\pi}{2^{1+n+\dots+s+\dots}q}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{te^{-qr}+\dots-qw}$ (H, 77).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle binôme;
Circul. Directe à un facteur.

TABLE 375.

Lim. 0 et ∞.

1) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,\frac{x\,dx}{q^2+x^2} = \pi\,\{1 - Cos\,(r\,e^{-q\,s})\}$ (VIII, 500).

2) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,Sin\,(r\,e^{-q\,s})$ (VIII, 499).

3) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,\frac{x\,dx}{q^2+x^2} = \pi\,\{Sin\,(r\,e^{-q\,s}) - r\,e^{-q\,s}\}$ (VIII, 500).

4) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,Cos\,(r\,e^{-q\,s})$ (VIII, 499).

5) $\int \{1 - e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x)\}\,Tg\,s\,x\,\frac{x\,dx}{q^2+x^2} = \frac{\pi\,e^{r-2\,q\,s}}{1+e^{-2\,q\,s}} + \frac{\pi}{2}\,\frac{1-e^{-2\,q\,s}}{1+e^{-2\,q\,s}}\,e^{r\,e^{-q\,s}}$ (H, 154).

6) $\int \{1 - e^{r\,Cos\,s\,x}\,Cos\,(r\,Sin\,s\,x)\}\,Cot\,s\,x\,\frac{x\,dx}{q^2+x^2} = \frac{\pi\,e^{r-2\,q\,s}}{1-e^{-2\,q\,s}} - \frac{\pi}{2}\,\frac{1+e^{-2\,q\,s}}{1-e^{-2\,q\,s}}\,e^{r\,e^{-q\,s}}$ (H, 154).

7) $\int \{1 - Cos^r\,s\,x\,.\,e^{t\,Cos\,2\,s\,x}\,Cos\,(s\,r\,x + t\,Sin\,2\,s\,x)\}\,Tg\,2\,s\,x\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{1+e^{-4\,q\,s}}\,e^{t-4\,q\,s} +$

$+ \frac{\pi}{2^{r+1}}\,\frac{1-e^{-2\,q\,s}}{1+e^{-4\,q\,s}}\,(1+e^{-2\,q\,s})^{r+1}\,e^{t\,e^{-2\,q\,s}}$ (H, 158).

8) $\int \{1 - Cos^r\,s\,x\,.\,e^{t\,Cos\,2\,s\,x}\,Cos\,(s\,r\,x + t\,Sin\,2\,s\,x)\}\,Cot\,2\,s\,x\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{1-e^{-4\,q\,s}}\,e^{t-4\,q\,s} -$

$- \frac{\pi}{2^{r+1}}\,\frac{1+e^{-4\,q\,s}}{1-e^{-2\,q\,s}}\,(1+e^{-2\,q\,s})^{r-1}\,e^{t\,e^{-2\,q\,s}}$ (H, 158).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle binôme;
Circ. Dir. à deux facteurs.

TABLE 376.

Lim. 0 et ∞.

1) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Sin\,p\,x\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,(e^{-p\,q} - e^{p\,q})\,Sin\,(r\,e^{-q\,s}) +$

$+ \frac{\pi}{2}\,e^{p\,q}\,\sum_0^d \frac{r^{2\,n+1}}{1^{2\,n+1/1}}\,(-1)^n\,e^{-(2\,n+1)\,q\,s} + \frac{\pi}{2}\,e^{-p\,q}\,\sum_0^d \frac{r^{2\,n+1}}{1^{2\,n+1/1}}\,(-1)^n\,e^{(2\,n+1)\,q\,s}$

$[p = (2\,d+1)\,s + p',\ p' < 2\,s]$, $= \frac{\pi}{2}\,(e^{-p\,q} - e^{p\,q})\,Sin\,(r\,e^{-q\,s}) +$

$+ \frac{\pi}{2}\,e^{p\,q}\,\sum_0^{d-1} \frac{r^{2\,n+1}}{1^{2\,n+1/1}}\,(-1)^n\,e^{-(2\,n+1)\,q\,s} + \frac{\pi}{2}\,e^{-p\,q}\,\sum_0^d \frac{r^{2\,n+1}}{1^{2\,n+1/1}}\,(-1)^n\,e^{(2\,n+1)\,q\,s}$

$[p = (2\,d+1)\,s]$ (VIII, 500).

F. Alg. rat. fract. à dén. q^2+x^2;
Exponentielle binôme; TABLE 376, suite. Lim. 0 et ∞.
Circ. Dir. à deux facteurs.

2) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\, Sin\,(r\,Cos\,s\,x) \,.\, Sin\,p\,x \,\frac{dx}{q^2+x^2} = \frac{\pi}{2q}(e^{-p\,q} - e^{p\,q})\, Cos\,(r\,e^{-q\,s}) +$

$+ \frac{\pi}{2q} e^{p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} - \frac{\pi}{2q} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{2nqs}$

$[p = 2\,d\,s + p',\, 0 \leqq p' < 2\,s]$ (VIII, 500).

3) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\, Sin\,(r\,Cos\,s\,x) \,.\, Cos\,p\,x \,\frac{dx}{q^2+x^2} = \frac{\pi}{2q}(e^{p\,q} + e^{-p\,q})\, Sin\,(r\,e^{-q\,s}) -$

$- \frac{\pi}{2q} e^{p\,q} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{-(2n+1)qs} + \frac{\pi}{2q} e^{-p\,q} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{(2n+1)qs}$

$[p = (2\,d+1)\,s + p',\, 0 \leqq p' < 2\,s]$ (VIII, 500).

4) $\int (e^{r\,Sin\,s\,x} - e^{r\,Sin\,s\,x})\, Sin\,(r\,Cos\,s\,x) \,.\, Cos\,p\,x \,\frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2}(e^{p\,q} + e^{-p\,q})\, Cos\,(r\,e^{-q\,s}) +$

$+ \frac{\pi}{2} e^{p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{2nqs}\, [p = 2\,d\,s + p',\, p' < 2\,s], =$

$= -\frac{\pi}{2}(e^{p\,q} + e^{-p\,q})\, Cos\,(r\,e^{-q\,s}) + \frac{\pi}{2} e^{p\,q} \sum_0^{d-1} \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n$

$e^{2nqs}\, [p = 2\,d\,s]$ (VIII, 501).

5) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\, Cos\,(r\,Cos\,s\,x) \,.\, Sin\,p\,x \,\frac{dx}{q^2+x^2} = \frac{\pi}{2q}(e^{p\,q} - e^{-p\,q})\, Sin\,(r\,e^{-q\,s}) -$

$- \frac{\pi}{2q} e^{p\,q} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{-(2n+1)qs} + \frac{\pi}{2q} e^{-p\,q} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n e^{(2n+1)qs}$

$[p = (2\,d+1)\,s + p',\, 0 \leqq p' < 2\,s]$ (VIII, 500).

6) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\, Cos\,(r\,Cos\,s\,x) \,.\, Sin\,p\,x \,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}(e^{-p\,q} - e^{p\,q})\, Cos\,(r\,e^{-q\,s}) +$

$+ \frac{\pi}{2} e^{p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{2nqs}\, [p = 2\,d\,s + p',\, p' < 2\,s], =$

$= \frac{\pi}{2}(e^{-p\,q} - e^{p\,q})\, Cos\,(r\,e^{-q\,s}) + \frac{\pi}{2} e^{p\,q} \sum_0^{d-1} \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} + \frac{\pi}{2} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n$

$e^{2nqs}\, [p = 2\,d\,s]$ (VIII, 500).

7) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\, Cos\,(r\,Cos\,s\,x) \,.\, Cos\,p\,x \,\frac{dx}{q^2+x^2} = \frac{\pi}{2q}(e^{p\,q} + e^{-p\,q})\, Cos\,(r\,e^{-q\,s}) -$

$- \frac{\pi}{2q} e^{p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{-2nqs} + \frac{\pi}{2q} e^{-p\,q} \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n e^{2nqs}$

$[p = 2\,d\,s + p',\, 0 \leqq p' < 2\,s]$ (VIII, 499).

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8) $\int (e^{r \,Sin\, s\,x} - e^{-r\, Sin\, s\,x})\, Cos\,(r\, Cos\, s\,x)\,.\, Cos\, p\,x\, \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,(e^{pq}+e^{-pq})\, Sin\,(r\,e^{-qs}) -$

$- \frac{\pi}{2}\, e^{pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} - \frac{\pi}{2}\, e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n+1)qs}$

$[p=(2d+1)s+p',\ p'<2s], = \frac{\pi}{2}\,(e^{pq}+e^{-pq})\, Sin\,(r\,e^{-qs}) - \frac{\pi}{2}\, e^{pq}$

$\sum_0^{d-1} \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{-(2n+1)qs} - \frac{\pi}{2}\, e^{-pq} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n e^{(2n+1)qs}$

$[p=(2d+1)s]$ (VIII, 501).

9) $\int (e^{r\, Sin\, s\,x} + e^{-r\, Sin\, s\,x})\, Sin\,(r\, Cos\, s\,x)\,.\, Sin^{2a+1} x\, \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+1}}\,(e^q-e^{-q})^{2a+1}\, Sin\,(r\,e^{-qs})$

$[s>2a+1], = \frac{(-1)^{a-1}\pi}{2^{2a+1}}\,[(e^q-e^{-q})^{2a+1}\, Sin\,(r\,e^{-qs}) - r]\ [s=2a+1]$ (V, 99).

10) $\int (e^{r\, Sin\, s\,x} - e^{-r\, Sin\, s\,x})\, Sin\,(r\, Cos\, s\,x)\,.\, Sin^{2a} x\, \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a}}\,(e^q-e^{-q})^{2a}\,[Cos\,(r\,e^{-qs})-1]$

$[s>2a], = \frac{(-1)^{a-1}\pi}{2^{2a}}\,(e^q-e^{-q})^{2a} \left(Cos\,(r\,e^{-qs}) - 1 + \frac{1}{2} r^2 e^{-2qs}\right) [s=2a]$ (V, 98).

11) $\int (e^{r\, Sin\, s\,x} + e^{-r\, Sin\, s\,x})\, Sin\,(r\, Cos\, s\,x)\,.\, Cos^a x\, \frac{dx}{q^2+x^2} = \frac{\pi}{2^a q}\,(e^q+e^{-q})^a\, Sin\,(r\,e^{-qs})\ [s \geqq a]$

(V, 98).

12) $\int (e^{r\, Sin\, s\,x} - e^{-r\, Sin\, s\,x})\, Cos\,(r\, Cos\, s\,x)\,.\, Sin^{2a} x\, \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a}}\,(e^q-e^{-q})^{2a}\, Sin\,(r\,e^{-qs})$

$[s>2a], = \frac{(-1)^a\pi}{2^{2a}} \left\{(e^q-e^{-q})^{2a}\, Sin\,(r\,e^{-qs}) - r\right\} [s=2a]$ (V, 98).

13) $\int (e^{r\, Sin\, s\,x} + e^{-r\, Sin\, s\,x})\, Cos\,(r\, Cos\, s\,x)\,.\, Sin^{2a+1} x\, \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+1}} \Big[e^{-(2a+1)q} \Big\{ (1-e^{(2a+1)2q})$

$(1-e^{-2q})^{2a+1} - 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \Big\} + (e^q-e^{-q})^{2a+1} [Cos\,(r\,e^{-qs}) - 1] \Big]$

$[s>2a+1], = \frac{(-1)^{a-1}\pi}{2^{2a+1}} \Big[e^{-(2a-1)q} \Big\{ (1-e^{(2a+1)2q})\,(1-e^{-2q})^{2a+1} -$

$- 2 \sum_0^a (-1)^n \binom{2a+1}{n} e^{2nq} \Big\} + (e^q-e^{-q})^{2a+1} \left(Cos\,(r\,e^{-qs}) - 1 + \frac{1}{2} r^2 e^{2qs}\right) \Big]$

$[s=2a+1]$ (V, 99).

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14) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Cos^{2a}x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a}q}\left[\binom{2a}{a}+2\sum_1^a\binom{2a}{n+a}e^{-2nq}+\right.$$
$$\left.+(e^q+e^{-q})^{2a}\left[Cos\,(re^{-qs})-1\right]\right]\ [s\geqq 2a]\ (V,\ 98).$$

15) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Cos^{2a+1}x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2a+1}q}\left[2\sum_0^a\binom{2a+1}{n+a+1}e^{-(2n+1)q}+\right.$$
$$\left.+(e^q+e^{-q})^{2a+1}\left[Cos\,(re^{-qs})-1\right]\right]\ [s\geqq 2a+1]\ (V,\ 98).$$

1) $$\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}$$
$$(e^{pq}-e^{-pq})Sin\,(re^{-qs})\,[2p>4a<s \text{ ou } 4a>2p<s],=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a}$$
$$(e^{pq}-e^{-pq})\,Sin\,(re^{-qs})-r\}\ [p=s-2a]\ (V,\ 100).$$

2) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$$
$$(e^{pq}-e^{-pq})\{Cos\,(re^{-qs})-1\}\,[p<s-2a-1],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{pq}-e^{-pq})$$
$$\left(Cos\,(re^{-qs})-1+\frac{1}{2}r^2e^{-2sq}\right)[p=s-2a-1]\ (V,\ 103).$$

3) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Cos^{a}x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{pq}-e^{-pq})$$
$$[1-Cos\,(re^{-qs})]\ [p\leqq s-a]\ (V,\ 100).$$

4) $$\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})$$
$$[Cos\,(re^{-qs})-1]\,[p<s-2a],=\frac{(-1)^a\pi}{2^{2a+1}}\left[(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})\left(Cos\,(re^{-qs})-1+\right.\right.$$
$$\left.\left.+\frac{1}{2}r^2e^{-2sq}\right)\right]\ [p=s-2a]\ (V,\ 101).$$

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5) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$
$(e^{pq}+e^{-pq})\,Sin\,(r e^{-qs})\,[s>4a+2<2p$ ou $4a+2>2p<s]$, $=\frac{(-1)^a\pi}{2^{2a+2}}$
$\{(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})\,Sin\,(re^{-qs})-r\}\,[p=s-2a-1$ et $2p>s>4a+2$
ou $2p<s<4a+2]$ (V, 102).

6) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,.\,Cos\,p\,x\,.\,Cos^a x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{pq}+e^{-pq})$
$Sin\,(re^{-qs})\,[2p\geqq 2a\leqq s$ ou $2a>2p\leqq s]$ (V, 99).

7) $\int (e^{r\,Sin\,s\,x}+e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\{2e^{-pq}-$
$-(e^{pq}-e^{-pq})[Cos\,(re^{-qs})-1]\}\,[2p>4a<s]$, $=\frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\{2e^{-pq}-$
$-(e^{pq}-e^{-pq})[Cos(re^{-qs})-1]\}-2e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n$
$\binom{2a}{n}e^{2nq}\Big]\,[s>2p<4a, p$ entier$]$, $=\frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\{2e^{-pq}-(e^{pq}-e^{-pq})$
$[Cos\,(re^{-qs})-1]\}-2e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]$
$[s>2p<4a, p$ fractionn.$]$, $=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\Big[2e^{-pq}-(e^{pq}-e^{-pq})\Big(Cos(re^{-qs})-1+$
$+\frac{1}{2}r^2e^{-2qs}\Big)\Big][2s-4a=2p>s>4a]$, $=\frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\Big\{2e^{-pq}-(e^{pq}-e^{-pq})$
$\Big(Cos(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\Big)\Big\}-2e^{(2a-p)q}\sum_0^{d-1}(-1)^n\binom{2a}{n}e^{-2nq}-2e^{(p-2a)q}\sum_0^{d}(-1)^n$
$\binom{2a}{n}e^{2nq}\Big]\,[2s-4a=2p<s<4a, p$ entier$]$, $=\frac{(-1)^a\pi}{2^{2a+1}}\Big[(e^q-e^{-q})^{2a}\Big\{2e^{-pq}-$
$-(e^{pq}-e^{-pq})\Big(Cos(re^{-qs})-1+\frac{1}{2}r^2e^{-2qs}\Big)\Big\}-2e^{(2a-p)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{-2nq}-$
$-2e^{(p-2a)q}\sum_0^{d}(-1)^n\binom{2a}{n}e^{2nq}\Big]\,[2s-4a=2p<s<4a, p$ fractionn.$]$
$\Big[d=\mathcal{E}\Big(a-\frac{1}{2}p\Big)\Big]$. (V, 100).

8) $\int (e^{r\,Sin\,s\,x}-e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}$
$(e^{pq}-e^{-pq})\,Sin\,(re^{-qs})\,[p<s-2a-1]$, $=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\Big\{(e^q-e^{-q})^{2a+1}(e^{pq}-e^{-pq})$
$Sin\,(re^{-qs})-r\Big\}\,[p=s-2a-1]$ (V, 103).

9) $\int (e^{r \, Sin \, s \, x} - e^{-r \, Sin \, s \, x}) \, Cos\,(r \, Cos \, s \, x) \, . \, Sin \, p \, x \, . \, Cos^a x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+1} q} (e^q + e^{-q})^a (e^{pq} - e^{-pq})$
$Sin\,(r e^{-qs}) \; [p \leqq s-a]$ (V, 99).

10) $\int (e^{r \, Sin \, s \, x} - e^{-r \, Sin \, s \, x}) \, Cos\,(r \, Cos \, s \, x) \, . \, Cos \, p \, x \, . \, Sin^{2a} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq})$
$Sin\,(r e^{-qs}) \; [p < s - 2a], = \frac{(-1)^a \pi}{2^{2a+1}} \{(e^q - e^{-q})^{2a} (e^{pq} + e^{-pq}) \, Sin\,(r e^{-qs}) - r\}$
$[p = s - 2a]$ (V, 101).

11) $\int (e^{r \, Sin \, s \, x} + e^{-r \, Sin \, s \, x}) \, Cos\,(r \, Cos \, s \, x) \, . \, Cos \, p \, x \, . \, Sin^{2a+1} x \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+2}} (e^q - e^{-q})^{2a+1}$
$\{2 e^{-pq} + (e^{pq} + e^{-pq}) [Cos\,(r e^{-qs}) - 1]\} \; [2p > 4a + 2 < s], = \frac{(-1)^{a-1} \pi}{2^{2a+2}} \Big[(e^q - e^{-q})^{2a+1}$
$\{2 e^{-pq} + (e^{pq} + e^{-pq}) [Cos\,(r e^{-qs}) - 1]\} - 2 e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} -$
$- 2 e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$4a + 2 > 2p < s$, p entier], $= \frac{(-1)^{a-1} \pi}{2^{2a+2}}$
$\Big[(e^q - e^{-q})^{2a+1} \; \{2 e^{-pq} + (e^{pq} + e^{-pq}) [Cos\,(r e^{-qs}) - 1]\} - 2 e^{(2a+1-p)q} \sum_0^{d} (-1)^n$
$\binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$4a+2 > 2p < s$, p fractionn.], $=$
$= \frac{(-1)^{a-1} \pi}{2^{2a+2}} (e^q - e^{-q})^{2a+1} \left\{ 2 e^{-pq} + (e^{pq} + e^{-pq}) \left(Cos\,(r e^{-qs}) - 1 + \frac{1}{2} r^2 e^{-2qs} \right) \right\}$
$[2s - 4a - 2 = 2p > s > 4a + 2], = \frac{(-1)^{a-1} \pi}{2^{2a+2}} \Big[(e^q - e^{-q})^{2a+1} \Big\{ 2 e^{-pq} + (e^{pq} + e^{-pq})$
$\left(Cos\,(r e^{-qs}) - 1 + \frac{1}{2} r^2 e^{-2qs} \right) \Big\} - 2 e^{(2a+1-p)q} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q}$
$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$2s - 4a - 2 = 2p < s < 4a + 2$, p entier], $= \frac{(-1)^{a-1} \pi}{2^{2a+2}}$
$\Big[(e^q - e^{-q})^{2a+1} \left\{ 2 e^{-pq} + (e^{pq} + e^{-pq}) \left(Cos\,(r e^{-qs}) - 1 + \frac{1}{2} r^2 e^{-2qs} \right) \right\} - 2 e^{(2a+1-p)q}$
$\sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} - 2 e^{(p-2a-1)q} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$2s - 4a - 2 =$
$= 2p < s < 4a + 2$, p fractionn.] $\left[d = \mathcal{E} \frac{1}{2} (2a + 1 - p) \right]$ (V, 101, 102).

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12) $\int (e^{r \,Sin\, s x} + e^{-r \,Sin\, s x})\, Cos\,(r\, Cos\, s x) . Cos\, p x . Cos^a x \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} (e^q + e^{-q})^a \{2 e^{-p q} +$
$+ (e^{p q} + e^{-p q}) [Cos\,(r e^{-q s}) - 1]\} \; [2p \geqq 2a \leqq s], = \frac{\pi}{2^{a+1} q} \Big[(e^q + e^{-q})^a \{2 e^{-p q} +$
$+ (e^{p q} + e^{-p q}) [Cos\,(r e^{-q s}) - 1]\} - 2 e^{(a-p) q} \sum_0^d \binom{a}{n} e^{-2 n q} + 2 e^{(p-a) q} \sum_0^d \binom{a}{n} e^{2 n q}\Big]$
$[2a > 2p \leqq s] \left[d = \mathcal{E} \frac{1}{2} (a - p)\right]$ (V, 99).

F. Alg. rat. fract. à dén. $q^2 - x^2$;
Exponentielle monôme; TABLE 378. Lim. 0 et ∞.
Circ. Dir. à un ou deux fact.

1) $\int e^{r \,Cos\, s x}\, Sin\,(r\, Sin\, s x) \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} \{1 - e^{r \,Cos\, q s}\, Cos\,(r\, Sin\, q s)\}$ (VIII, 508).

2) $\int e^{r \,Cos\, s x}\, Cos\,(r\, Sin\, s x) \frac{dx}{q^2 - x^2} = \frac{\pi}{2 q} e^{r \,Cos\, q s}\, Sin\,(r\, Sin\, q s)$ (VIII, 507).

3) $\int e^{r \,Cos\, s x}\, Sin\,(p x + r\, Sin\, s x) \frac{x\, dx}{q^2 - x^2} = -\frac{\pi}{2} e^{r \,Cos\, q s}\, Cos\,(p q + r\, Sin\, q s)\; [p = d s + p'], =$
$= \frac{\pi}{2} \frac{r^d}{1^{d/1}} - \frac{\pi}{2} e^{r \,Cos\, q s}\, Cos\,(p q + r\, Sin\, q s)\; [p = d s]$ (VIII, 508).

4) $\int e^{r \,Cos\, s x}\, Cos\,(p x + r\, Sin\, s x) \frac{dx}{q^2 - x^2} = \frac{\pi}{2 q} e^{r \,Cos\, q s}\, Sin\,(p q + r\, Sin\, q s)$ (VIII, 508).

5) $\int e^{r \,Cos\, s x}\, Sin\,(r\, Sin\, s x) . Sin\, p x \frac{dx}{q^2 - x^2} = -\frac{\pi}{2 q} e^{r \,Cos\, q s}\, Sin\, p q . Cos\,(r\, Sin\, q s) +$
$+ \frac{\pi}{2 q} \sum_0^d \frac{r^n}{1^{n/1}} Sin\,\{(p - n s) q\}\; [p = d s + p', 0 \leqq p' < s]$ (VIII, 508).

6) $\int e^{r \,Cos\, s x}\, Sin\,(r\, Sin\, s x) . Cos\, p x \frac{x\, dx}{q^2 - x^2} = -\frac{\pi}{2} e^{r \,Cos\, q s}\, Cos\, p q . Cos\,(r\, Sin\, q s) +$
$+ \frac{\pi}{2} \sum_0^d \frac{r^n}{1^{n/1}} Cos\,\{(p - n s) q\}\; [p = d s + p', p' < s], = -\frac{\pi}{2} e^{r \,Cos\, q s}\, Cos\, p q . Cos\,(r\, Sin\, q s) +$
$+ \frac{\pi}{4} \frac{r^d}{1^{d/1}} + \frac{\pi}{2} \sum_0^d \frac{r^n}{1^{n/1}} Cos\,\{(p - n s) q\}\; [p = d s]$ (VIII, 508).

7) $\int e^{r \,Cos\, s x}\, Cos\,(r\, Sin\, s x) . Sin\, p x \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} e^{r \,Cos\, q s}\, Sin\, p q . Sin\,(r\, Sin\, q s) -$

$$-\frac{\pi}{2}\sum_0^d \frac{r^n}{1^{n/1}} Cos\{(p-ns)q\} \; [p=ds+p', p'<s], = \frac{\pi}{2} e^{r\,Cos\,q\,s} Sin\,p\,q \,.\, Sin(r\,Sin\,q\,s) +$$

$$+\frac{\pi}{4}\frac{r^d}{1^{d/1}} - \frac{\pi}{2}\sum_0^d \frac{r^n}{1^{n/1}} Cos\{(p-ns)q\} \; [p=ds] \text{ (VIII, 507).}$$

8) $$\int e^{r\,Cos\,s\,x} Cos(r\,Sin\,s\,x)\,.\,Cos\,p\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} e^{r\,Cos\,q\,s} Cos\,p\,q\,.\,Sin(r\,Sin\,q\,s) +$$

$$+\frac{\pi}{2q}\sum_0^d \frac{r^n}{1^{n/1}} Sin\{(p-ns)q\} \; [p=ds+p', 0 \leqq p' < s] \text{ (VIII, 507).}$$

9) $$\int e^{r\,Cos\,s\,x} Sin(r\,Cos\,s\,x)\,.\,Tg\,s\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Tg\,q\,s\,.\,\{e^r - e^{r\,Cos\,q\,s} Cos(r\,Sin\,q\,s)\} \text{ (H, 154).}$$

10) $$\int e^{r\,Cos\,s\,x} Sin(r\,Cos\,s\,x)\,.\,Cot\,s\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cot\,q\,s\,.\,\{e^r - e^{r\,Cos\,q\,s} Cos(r\,Sin\,q\,s)\} \text{ (H, 154).}$$

11) $$\int e^{r\,Cos\,s\,x} Sin(r\,Sin\,s\,x + s\,x)\,.\,Tg\,s\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Tg\,q\,s\,.\,\{e^r - e^{r\,Cos\,q\,s} Cos(r\,Sin\,q\,s + q\,s)\}$$

(H, 156).

12) $$\int e^{r\,Cos\,s\,x} Sin(r\,Sin\,s\,x + s\,x)\,.\,Cot\,s\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cot\,q\,s\,.\,\{e^r - e^{r\,Cos\,q\,s} Cos(r\,Sin\,q\,s + q\,s)\}$$

(H, 156).

13) $$\int e^{r\,Cos\,s\,x} Cos(r\,Sin\,s\,x + s\,x)\,.\,Tg\,s\,x \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\{e^{r\,Cos\,q\,s} Sin(r\,Sin\,q\,s + q\,s)\,.\,Tg\,q\,s + e^r\}$$

(H, 156).

14) $$\int e^{r\,Cos\,s\,x} Cos(r\,Sin\,s\,x + s\,x)\,.\,Cot\,s\,x \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\{e^{r\,Cos\,q\,s} Sin(r\,Sin\,q\,s + q\,s)\,.\,Cot\,q\,s - e^r\}$$

(H, 156).

F. Alg. rat. fract. à dén. $q^2 - x^2$;
Exponentielle monôme; TABLE 379. Lim. 0 et ∞.
Circ. Dir. à trois ou quatre fact.

1) $$\int e^{t\,Cos\,2\,r\,x} Cos^s\,r\,x\,.\,Sin(s\,r\,x + t\,Sin\,2\,r\,x)\,.\,Tg\,2\,r\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Tg\,2\,q\,r\,.\,\{e^t - e^{t\,Cos\,2\,q\,r} Cos^s\,q\,r\,.$$

$$Cos(s\,q\,r + t\,Sin\,2\,q\,r)\} \text{ (H, 159).}$$

2) $$\int e^{t\,Cos\,2\,r\,x} Cos^s\,r\,x\,.\,Sin(s\,r\,x + t\,Sin\,2\,r\,x)\,.\,Cot\,2\,r\,x \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Cot\,2\,q\,r\,.\,\{e^t - e^{t\,Cos\,2\,q\,r} Cos^s\,q\,r\,.$$

$$Cos(s\,q\,r + t\,Sin\,2\,q\,r)\} \text{ (H, 159).}$$

3) $\int e^{t\,Cos\,2\,r\,x}\, Sin^{s-1}\, r\,x \,.\, Cos^{p-1}\, r\,x \,.\, Sin\left\{\frac{1}{2}\,s\,\pi - (p+s)\,r\,x - t\,Sin\,2\,r\,x\right\} \frac{d\,x}{q^2 - x^2} =$

$= \frac{\pi}{2\,q}\, e^{t\,Cos\,2\,q\,r}\, Sin^{s-1}\, q\,r \,.\, Cos^{p-1}\, q\,r \,.\, Cos\left\{\frac{1}{2}\,s\,\pi - (p+s)\,q\,r - t\,Sin\,2\,q\,r\right\}$ (H, 161).

4) $\int e^{t\,Cos\,2\,r\,x}\, Cos^s\, r\,x \,.\, Sin\left\{(s+2)\,r\,x + t\,Sin\,2\,r\,x\right\} .\, Tg\,2\,r\,x \frac{d\,x}{q^2 - x^2} = \frac{\pi}{2\,q}\, Tg\,2\,q\,r .\left[e^t - e^{t\,Cos\,2\,q\,r}\right.$

$\left. Cos^s\, q\,r \,.\, Cos\left\{(s+2)\,q\,r + t\,Sin\,2\,q\,r\right\}\right]$ (H, 165).

5) $\int e^{t\,Cos\,2\,r\,x}\, Cos^s\, r\,x \,.\, Sin\left\{(s+2)\,r\,x + t\,Sin\,2\,r\,x\right\} .\, Cot\,2\,r\,x \frac{d\,x}{q^2 - x^2} = \frac{\pi}{2\,q}\, Cot\,2\,q\,r .\left[e^t - e^{t\,Cos\,2\,q\,r}\right.$

$\left. Cos^s\, q\,r \,.\, Cos\left\{(s+2)\,q\,r + t\,Sin\,2\,q\,r\right\}\right]$ (H, 165).

6) $\int e^{t\,Cos\,2\,r\,x}\, Sin^{s-1}\, r\,x \,.\, Cos^{p-1}\, r\,x \,.\, Cos\left\{\frac{1}{2}\,s\,\pi - (p+s)\,r\,x - t\,Sin\,2\,r\,x\right\} \frac{x\,d\,x}{q^2 - x^2} =$

$= \frac{\pi}{2}\, e^{t\,Cos\,2\,q\,r}\, Sin^{s-1}\, q\,r \,.\, Cos^{p-1}\, q\,r \,.\, Sin\left\{\frac{1}{2}\,s\,\pi - (p+s)\,q\,r - t\,Sin\,2\,q\,r\right\}$ (H, 161).

7) $\int e^{t\,Cos\,2\,r\,x}\, Cos^s\, r\,x \,.\, Cos\left\{(s+2)\,r\,x + t\,Sin\,2\,r\,x\right\} .\, Tg\,2\,r\,x \frac{x\,d\,x}{q^2 - x^2} = \frac{\pi}{2}\left[e^t + e^{t\,Cos\,2\,q\,r}\, Cos^s\, q\,r .\right.$

$\left. Tg\,2\,q\,r \,.\, Sin\left\{(s+2)\,q\,r + t\,Sin\,2\,q\,r\right\}\right]$ (H, 165).

8) $\int e^{t\,Cos\,2\,r\,x}\, Cos^s\, r\,x \,.\, Cos\left\{(s+2)\,r\,x + t\,Sin\,2\,r\,x\right\} .\, Cot\,2\,r\,x \frac{x\,d\,x}{q^2 - x^2} = \frac{\pi}{2}\left[e^{t\,Cos\,2\,q\,r}\, Cos^s\, q\,r .\right.$

$\left. Cot\,2\,q\,r \,.\, Sin\left\{(s+2)\,q\,r + t\,Sin\,2\,q\,r\right\} - e^t\right]$ (H, 165).

9) $\int e^{t\,Cos\,2\,r\,x}\, Sin^{s-1}\, r\,x \,.\, Cos^{p-1}\, r\,x \,.\, Sin\left\{\frac{1}{2}\,s\,\pi - (p+s+2)\,r\,x - t\,Sin\,2\,r\,x\right\} \frac{d\,x}{q^2 - x^2} =$

$= \frac{\pi}{2\,q}\, e^{t\,Cos\,2\,q\,r}\, Sin^{s-1}\, q\,r \,.\, Cos^{p-1}\, q\,r \,.\, Cos\left\{\frac{1}{2}\,s\,\pi - (p+s+2)\,q\,r - t\,Sin\,2\,q\,r\right\}$ (H, 170).

10) $\int e^{t\,Cos\,2\,r\,x}\, Sin^{s-1}\, r\,x \,.\, Cos^{p-1}\, r\,x \,.\, Cos\left\{\frac{1}{2}\,s\,\pi - (p+s+2)\,r\,x - t\,Sin\,2\,r\,x\right\} \frac{x\,d\,x}{q^2 - x^2} =$

$= \frac{\pi}{2}\, e^{t\,Cos\,2\,q\,r}\, Sin^{s-1}\, q\,r \,.\, Cos^{p-1}\, q\,r \,.\, Sin\left\{\frac{1}{2}\,s\,\pi - (p+s+2)\,q\,r - t\,Sin\,2\,q\,r\right\}$ (H, 169).

11) $\int e^{t\,Cos\,2\,r\,x}\, Sin^s\, r\,x \,.\, Cos^p\, r\,x \,.\, Sin\left\{\frac{1}{2}\,s\,\pi - (p+s)\,r\,x - t\,Sin\,2\,r\,x\right\} .\, Tg\,2\,r\,x \frac{d\,x}{q^2 - x^2} =$

$= \frac{\pi}{2\,q}\, e^{t\,Cos\,2\,q\,r}\, Sin^s\, q\,r \,.\, Cos^p\, q\,r \,.\, Tg\,2\,q\,r \,.\, Cos\left\{\frac{1}{2}\,s\,\pi - (p+s)\,q\,r - t\,Sin\,2\,q\,r\right\}$ (H, 160).

12) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s)rx - t\,Sin\,2rx\right\}.\,Cot\,2rx\,\frac{dx}{q^2-x^2} =$

$= \frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Cot\,2qr\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s)qr - t\,Sin\,2qr\right\}$ (H, 161).

13) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s)rx - t\,Sin\,2rx\right\}.\,Tg\,2rx\,\frac{x\,dx}{q^2-x^2} =$

$= \frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Tg\,2qr\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s)qr - t\,Sin\,2qr\right\}$ (H, 160).

14) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s)rx - t\,Sin\,2rx\right\}.\,Cot\,2rx\,\frac{x\,dx}{q^2-x^2} =$

$= \frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Cot\,2qr\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s)qr - t\,Sin\,2qr\right\}$ (H, 161).

15) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s+2)rx - t\,Sin\,2rx\right\}.\,Tg\,2rx\,\frac{dx}{q^2-x^2} =$

$= \frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Tg\,2qr\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s+2)qr - t\,Sin\,2qr\right\}$ (H, 169).

16) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s+2)rx - t\,Sin\,2rx\right\}.\,Cot\,2rx\,\frac{dx}{q^2-x^2} =$

$= \frac{\pi}{2q}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Cot\,2qr\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s+2)qr - t\,Sin\,2qr\right\}$ (H, 169).

17) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s+2)rx - t\,Sin\,2rx\right\}.\,Tg\,2rx\,\frac{x\,dx}{q^2-x^2} =$

$= -\frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Tg\,2qr\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s+2)qr - t\,Sin\,2qr\right\}$ (H, 168).

18) $\int e^{t\,Cos\,2rx}\,Sin^s rx\,.\,Cos^p rx\,.\,Cos\left\{\frac{1}{2}s\pi - (p+s+2)rx - t\,Sin\,2rx\right\}.\,Cot\,2rx\,\frac{x\,dx}{q^2-x^2} =$

$= \frac{\pi}{2}e^{t\,Cos\,2qr}\,Sin^s qr\,.\,Cos^p qr\,.\,Cot\,2qr\,.\,Sin\left\{\frac{1}{2}s\pi - (p+s+2)qr - t\,Sin\,2qr\right\}$ (H, 169).

F. Alg. rat. fract. à dén. $q^2 - x^2$;
Expon. à expos. polynôme; TABLE 380. Lim. 0 et ∞.
Circulaire Directe.

1) $\int e^{s\,Cos\,rx + s_1\,Cos\,r_1x + \dots}\,Sin\,(s\,Sin\,rx + s_1\,Sin\,r_1x + \dots)\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left\{e^{s+s_1+\dots} - e^{s\,Cos\,qr + s_1\,Cos\,qr_1 + \dots}\right.$

$\left.Cos\,(s\,Sin\,qr + s_1\,Sin\,qr_1 + \dots)\right\}$ (H, 112).

2) $$\int e^{s \,Cos\, r x + s_1 Cos\, r_1 x + \dots} Cos\,(s\,Sin\,r x + s_1\,Sin\,r_1 x + \dots)\frac{dx}{q^2 - x^2} = \frac{\pi}{2q} e^{s\,Cos\,q r + s_1 Cos\,q r_1 + \dots}$$
$$Sin\,(s\,Sin\,q r + s_1\,Sin\,q r_1 + \dots) \text{ (H, 112).}$$

3) $$\int e^{s \,Cos\, r x + s_1 Cos\, r_1 x + \dots} Sin\,(s\,Sin\,r x + s_1\,Sin\,r_1 x + \dots + p x)\frac{x\,dx}{q^2 - x^2} = -\frac{\pi}{2} e^{s\,Cos\,q r + s_1 Cos\,q r_1 \dots}$$
$$Cos\,(s\,Sin\,q r + s_1\,Sin\,q r_1 + \dots + p q) \text{ (H, 114).}$$

4) $$\int e^{s \,Cos\, r x + s_1 Cos\, r_1 x + \dots} Cos\,(s\,Sin\,r x + s_1\,Sin\,r_1 x + \dots + p x)\frac{dx}{q^2 - x^2} = \frac{\pi}{2q} e^{s\,Cos\,q r + s_1 Cos\,q r_1 + \dots}$$
$$Sin\,(s\,Sin\,q r + s_1\,Sin\,q r_1 + \dots + p q) \text{ (H, 114).}$$

5) $$\int e^{t\,Cos\,u x + \dots} Sin^s r x \dots Cos^n p x \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots)x - t\,Sin\,u x - \dots\right\}\frac{x\,dx}{q^2 - x^2} =$$
$$= \frac{\pi}{2}\left[e^{t\,Cos\,q u + \dots} Sin^s q r \dots Cos^n p q \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots) q - t\,Sin\,q u - \dots\right\} - \right.$$
$$\left. - 2^{-s - \dots - n - \dots}\right] \text{ (H, 117).}$$

6) $$\int e^{t\,Cos\,u x + \dots} Sin^s r x \dots Cos^n p x \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots) x - t\,Sin\,u x - \dots\right\}\frac{dx}{q^2 - x^2} =$$
$$= -\frac{\pi}{2q} e^{t\,Cos\,q u + \dots} Sin^s q r \dots Cos^n p q \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots) q - \right.$$
$$\left. - t\,Sin\,q u - \dots\right\} \text{ (H, 117).}$$

7) $$\int e^{t\,Cos\,u x + \dots} Sin^s r x \dots Cos^n p x \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w) x - t\,Sin\,u x - \dots\right\}$$
$$\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2} e^{t\,Cos\,q u + \dots} Sin^s q r \dots Cos^n p q \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w) q - \right.$$
$$\left. - t\,Sin\,q u - \dots\right\} \text{ (H, 121).}$$

8) $$\int e^{t\,Cos\,u x + \dots} Sin^s r x \dots Cos^n p x \dots Cos\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w) x - t\,Sin\,u x - \dots\right\}$$
$$\frac{dx}{q^2 - x^2} = -\frac{\pi}{2q} e^{t\,Cos\,q u + \dots} Sin^s q r \dots Cos^n p q \dots Sin\left\{(s + \dots)\frac{1}{2}\pi - (np + \dots + sr + \dots + w) q - \right.$$
$$\left. - t\,Sin\,q u - \dots\right\} \text{ (H, 121).}$$

1) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,\frac{dx}{q^2 - x^2} = \frac{\pi}{2q}(e^{r\,Sin\,q\,s} - e^{-r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s)$ (VIII, 510).

2) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x)\,\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}\left\{(e^{r\,Sin\,q\,s} + e^{-r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s) - 2\right\}$ (VIII, 510).

3) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,\frac{dx}{q^2 - x^2} = \frac{\pi}{2q}(e^{-r\,Sin\,q\,s} - e^{r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s)$ (VIII, 510).

4) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x)\,\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}\left\{2\,r\,Cos\,q\,s - (e^{r\,Sin\,q\,s} + e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s)\right\}$ (VIII, 510).

5) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).Sin\,p\,x\,\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}(e^{r\,Sin\,q\,s} - e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).\,Sin\,p\,q -$
$- \pi \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Cos\,\{(p - 2\,n\,s - s)\,q\}\;[p = (2\,d+1)\,s + p', p' < 2\,s], =$
$= \frac{\pi}{2}(e^{r\,Sin\,q\,s} - e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).\,Sin\,p\,q + \frac{\pi\,r}{2}\frac{(-r^2)^d}{1^{2d+1/1}} - \pi \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n$
$Cos\,\{(p - 2\,n\,s - s)\,q\}\;[p = (2\,d+1)\,s]$ (VIII, 510).

6) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).\,Sin\,p\,x\,\frac{dx}{q^2 - x^2} = \frac{\pi}{2q}(e^{r\,Sin\,q\,s} + e^{-r\,Sin\,q\,s})\,Cos(r\,Cos\,q\,s).\,Sin\,p\,q -$
$- \frac{\pi}{q}\sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p - 2\,n\,s)\,q\}\;[p = 2\,d\,s + p', 0 \leqq p' < 2\,s]$ (VIII, 511).

7) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).\,Cos\,p\,x\,\frac{dx}{q^2 - x^2} = \frac{\pi}{2q}(e^{r\,Sin\,q\,s} - e^{-r\,Sin\,q\,s})\,Cos(r\,Cos\,q\,s).\,Cos\,p\,q +$
$+ \frac{\pi}{q}\sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}}(-1)^n\,Sin\,\{(p - 2\,n\,s - s)\,q\}\;[p = (2\,d+1)\,s + p', 0 \leqq p' < 2\,s + 1]$ (VIII, 510).

8) $\int (e^{r\,Sin\,s\,x} - e^{-r\,Sin\,s\,x})\,Sin\,(r\,Cos\,s\,x).\,Cos\,p\,x\,\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}(e^{r\,Sin\,q\,s} + e^{-r\,Sin\,q\,s})\,Sin\,(r\,Cos\,q\,s).\,Cos\,p\,q -$
$- \pi \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p - 2\,n\,s)\,q\}\;[p = 2\,d\,s + p', p' < 2\,s], = \frac{\pi}{2}(e^{r\,Sin\,q\,s} + e^{-r\,Sin\,q\,s})$
$Sin\,(r\,Cos\,q\,s).\,Cos\,p\,q - \frac{\pi}{2}\,\frac{(-r^2)^d}{1^{2d/1}} - \pi \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n\,Sin\,\{(p - 2\,n\,s)\,q\}\;[p = 2\,d\,s]$ (VIII, 511).

9) $\int (e^{r\,Sin\,s\,x} + e^{-r\,Sin\,s\,x})\,Cos\,(r\,Cos\,s\,x).\,Sin\,p\,x\,\frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2}(e^{-r\,Sin\,q\,s} - e^{r\,Sin\,q\,s})\,Cos\,(r\,Cos\,q\,s).\,Sin\,p\,q -$
$- \pi \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n\,Cos\,\{(p - 2\,n\,s)\,q\}\;[p = 2\,d\,s + p', p' < 2\,s], = \frac{\pi}{2}(e^{-r\,Sin\,q\,s} - e^{r\,Sin\,q\,s})$
$Cos\,(r\,Cos\,q\,s).\,Sin\,p\,q + \frac{\pi}{2}\,\frac{(-r^2)^d}{1^{2d/1}} - \pi \sum_0^d \frac{r^{2n}}{1^{2n/1}}(-1)^n\,Cos\,\{(p - 2\,n\,s)\,q\}\;[p = 2\,d\,s]$ (VIII, 510).

F. Alg. rat. fract. à dén. $q^2 - x^2$;
Exponentielle binôme; TABLE 381, suite. Lim. 0 et ∞.
Circulaire Directe

10) $\int (e^{r\, Sin\, s\, x} - e^{-r\, Sin\, s\, x})\, Cos\,(r\, Cos\, s\, x)\,.\, Sin\, p\, x \frac{dx}{q^2 - x^2} = -\frac{\pi}{2q}(e^{r\, Sin\, q\, s} + e^{-r\, Sin\, q\, s})\, Sin\,(r\, Cos\, q\, s)\,.$

$Sin\, p\, q + \frac{\pi}{q} \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n\, Sin\,\{(p - 2ns - s)q\}\; [p = (2d+1)s + p',\, 0 \leqq p' < 2s]$ (VIII, 511).

11) $\int (e^{r\, Sin\, s\, x} + e^{-r\, Sin\, s\, x})\, Cos\,(r\, Cos\, s\, x)\,.\, Cos\, p\, x \frac{dx}{q^2 - x^2} = \frac{\pi}{2q}(e^{-r\, Sin\, q\, s} - e^{r\, Sin\, q\, s})\, Sin\,(r\, Cos\, q\, s)\,.$

$Cos\, p\, q + \frac{\pi}{q} \sum_0^d \frac{r^{2n}}{1^{2n/1}} (-1)^n\, Sin\,\{(p - 2ns)q\}\; [p = 2ds + p',\, 0 \leqq p' < 2s]$ (VIII, 510).

12) $\int (e^{r\, Sin\, s\, x} - e^{-r\, Sin\, s\, x})\, Cos\,(r\, Cos\, s\, x)\,.\, Cos\, p\, x \frac{x\, dx}{q^2 - x^2} = -\frac{\pi}{2}(e^{r\, Sin\, q\, s} + e^{-r\, Sin\, q\, s})\, Sin\,(r\, Cos\, q\, s)\,.$

$Cos\, p\, q + \pi \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n\, Sin\,\{(p - 2ns - s)q\}\; [p = (2d+1)s + p',\, p' < 2s], =$

$= -\frac{\pi}{2}(e^{r\, Sin\, q\, s} + e^{-r\, Sin\, q\, s})\, Sin\,(r\, Cos\, q\, s)\,.\, Cos\, p\, q + \frac{\pi r}{2} \frac{(-r^2)^d}{1^{2d+1/1}} + \pi \sum_0^d \frac{r^{2n+1}}{1^{2n+1/1}} (-1)^n$

$Sin\,\{(p - 2ns - s)q\}\; [p = (2d+1)s]$ (VIII, 511).

13) $\int \{1 - e^{s\, Cos\, r\, x}\, Cos\,(s\, Sin\, r\, x)\}\, Tg\, r\, x \frac{x\, dx}{q^2 - x^2} = -\frac{\pi}{2}\{e^s + e^{s\, Cos\, q\, r}\, Sin\,(s\, Sin\, q\, r)\,.\, Tg\, q\, r\}$ (H, 154).

14) $\int \{1 - e^{s\, Cos\, r\, x}\, Cos\,(s\, Sin\, r\, x)\}\, Cot\, r\, x \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2}\{e^s - e^{s\, Cos\, q\, r}\, Sin\,(s\, Sin\, q\, r)\,.\, Cot\, q\, r\}$ (H, 154).

15) $\int \{1 - e^{t\, Cos\, 2\, r\, x}\, Cos^s\, r\, x\,.\, Cos\,(s\, r\, x + t\, Sin\, 2\, r\, x)\}\, Tg\, 2\, r\, x \frac{x\, dx}{q^2 - x^2} = -\frac{\pi}{2}\{e^t + e^{t\, Cos\, 2\, q\, r}\, Cos^s\, q\, r\,.$

$Tg\, 2\, q\, r\,.\, Sin\,(s\, q\, r + t\, Sin\, 2\, q\, r)\}$ (H, 159).

16) $\int \{1 - e^{t\, Cos\, 2\, r\, x}\, Cos^s\, r\, x\,.\, Cos\,(s\, r\, x + t\, Sin\, 2\, r\, x)\}\, Cot\, 2\, r\, x \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2}\{e^t - e^{t\, Cos\, 2\, q\, r}\, Cos^s\, q\, r\,.$

$Cot\, 2\, q\, r\,.\, Sin\,(s\, q\, r + t\, Sin\, 2\, q\, r)\}$ (H, 159).

F. Alg. rat. fract. à dén. $4m^4 + x^4$;
Expon. de Circulaire Directe; TABLE 382. Lim. 0 et ∞.
Circulaire Directe.

1) $\int e^{s\, Cos\, r\, x + s_1\, Cos\, r_1\, x + \dots}\, Sin\,(s\, Sin\, r\, x + s_1\, Sin\, r_1\, x + \dots) \frac{x\, dx}{4m^4 + x^4} =$

$= \frac{\pi}{4m^2} e^{s\, e^{-mr}\, Cos\, m\, r + s_1\, e^{-m r_1}\, Cos\, m\, r_1 + \dots} \{Sin\,(s\, e^{-mr}\, Sin\, m\, r + s_1\, e^{-m r_1}\, Sin\, m\, r_1 + \dots)\}$

(H, 65).

2) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^3\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)-e^{s+s_1+\dots}\right\}$$
(H, 66).

3) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Cos(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{4m^4+x^4}=$$
$$=\frac{\pi}{8m^3}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)+\right.$$
$$\left.+Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)\right\}$$ (H, 65).

4) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Cos(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^2\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)-\right.$$
$$\left.-Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots)\right\}$$ (H, 65).

5) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m^2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\,Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)$$
(H, 69).

6) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Sin(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x^3\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{2}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)-\right.$$
$$\left.-e^{s+s_1+\dots}\right\}$$ (H, 69).

7) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Cos(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{dx}{4m^4+x^4}=$$
$$=\frac{\pi}{8m^3}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)+\right.$$
$$\left.+Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)\right\}$$ (H, 69).

8) $$\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}Cos(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+px)\frac{x^2\,dx}{4m^4+x^4}=$$
$$=\frac{\pi}{4m}e^{se^{-mr}Cos\,mr+s_1e^{-mr_1}Cos\,mr_1+\dots-mp}\left\{Cos(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)-\right.$$
$$\left.-Sin(se^{-mr}\,Sin\,mr+s_1e^{-mr_1}\,Sin\,mr_1+\dots+mp)\right\}$$ (H, 69).

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9) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x\,dx}{4m^4+x^4}=\frac{-\pi}{2^{2+q+\dots+s+\dots}m^2}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots\right\}\ \text{(H, 74).}$$

10) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^3\,dx}{4m^4+x^4}=\frac{\pi}{2^{1+q+\dots+s+\dots}}\left[e^{t+\dots}-(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+\right.$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots\right\}\right]\ \text{(H, 74).}$$

11) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{dx}{4m^4+x^4}=\frac{\pi}{2^{3+q+\dots+s+\dots}m^3}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots\right\}+Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots\right\}\right]\ \text{(H, 73).}$$

12) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^2\,dx}{4m^4+x^4}=\frac{\pi}{2^{2+q+\dots+s+\dots}m}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{t\,e^{-mu}Cos\,mu+\dots}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots\right\}-Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots\right\}\right]\ \text{(H, 73).}$$

13) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-tSin\,ux-\dots\right\}$

$$\frac{x\,dx}{4m^4+x^4}=\frac{-\pi}{2^{2+q+\dots+s+\dots}m^2}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{te^{-mu}Cos\,mu+\dots-mw}Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\ \text{(H, 80).}$$

14) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$$\frac{x^3\,dx}{4m^4+x^4}=\frac{\pi}{2^{1+q+\dots+s+\dots}}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{te^{-mu}Cos\,mu+\dots-mw}Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\ \text{(H, 80).}$$

15) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$$\frac{dx}{4m^4+x^4}=\frac{\pi}{2^{3+q+\dots+s+\dots}m^3}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{te^{-mu}Cos\,mu+\dots-mw}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}+Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\right]\ \text{(H, 79).}$$

16) $\int e^{t\,Cos\,ux+\dots} Sin^s rx \dots Cos^q px \dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(qp+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$$\frac{x^2\,dx}{4m^4+x^4}=\frac{\pi}{2^{2+q+\dots+s+\dots}m}(1+2e^{-2mp}Cos\,2mp+e^{-4mp})^{\frac{1}{2}q}\dots(1-2e^{-2mr}Cos\,2mr+$$
$$+e^{-4mr})^{\frac{1}{2}s}\dots e^{te^{-mu}Cos\,mu+\dots-mw}\left[Cos\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.\right.$$
$$\left.+te^{-mu}Sin\,mu+\dots-mw\right\}-Sin\left\{q\,Arctg\frac{Sin\,2mp}{e^{2mp}+Cos\,2mp}+\dots-s\,Arctg\frac{Sin\,2mr}{e^{2mr}-Cos\,2mr}-\dots+\right.$$
$$\left.\left.+te^{-mu}Sin\,mu+\dots-mw\right\}\right]\ \text{(H, 79).}$$

1) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Sin\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots)\,\frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4\,q^2}\,\{e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots} -$
$- e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Cos\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots)\}$ (H, 113).

2) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Sin\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots)\,\frac{x^3\,dx}{q^4 - x^4} = \frac{\pi}{4}\,\{2 - e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots} -$
$- e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Cos\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots)\}$ (H, 113).

3) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Cos\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots)\,\frac{dx}{q^4 - x^4} = \frac{\pi}{4\,q^3}\,\{e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots} +$
$+ e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Sin\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots)\}$ (H, 113).

4) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Cos\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots)\,\frac{x^2\,dx}{q^4 - x^4} = \frac{\pi}{4\,q}\,\{e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}$
$Sin\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots) - e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots}\}$ (H, 113).

5) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Sin(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots + p\,x)\,\frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4\,q^2}\,\{e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots - p\,q} -$
$- e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Cos\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots + p\,q)\}$ (H, 115).

6) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Sin\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots + p\,x)\,\frac{x^3\,dx}{q^4 - x^4} = \frac{-\pi}{4}\,\{e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots - p\,q} +$
$+ e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Cos\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots + p\,q)\}$ (H, 115).

7) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Cos(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots + p\,x)\,\frac{dx}{q^4 - x^4} = \frac{\pi}{4\,q^3}\,\{e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots - p\,q} +$
$+ e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}\, Sin\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots + p\,q)\}$ (H, 115).

8) $\int e^{s\,Cos\,r\,x + s_1\,Cos\,r_1\,x + \dots}\, Cos\,(s\,Sin\,r\,x + s_1\,Sin\,r_1\,x + \dots + p\,x)\,\frac{x^2\,dx}{q^4 - x^4} = \frac{\pi}{4\,q}\,\{e^{s\,Cos\,q\,r + s_1\,Cos\,q\,r_1 + \dots}$
$Sin\,(s\,Sin\,q\,r + s_1\,Sin\,q\,r_1 + \dots + p\,q) - e^{s\,e^{-q\,r} + s_1\,e^{-q\,r_1} + \dots - p\,q}\}$ (H, 115).

9) $\int e^{t\,Cos\,u\,x + \dots}\, Sin^s\,r\,x \dots Cos^n\,p\,x \dots Sin\left\{(s + \dots)\,\frac{1}{2}\,\pi - (n\,p + \dots + s\,r + \dots)\,x - t\,Sin\,u\,x - \dots\right\}$
$\frac{x\,dx}{q^4 - x^4} = \frac{\pi}{4\,q^2}\left[e^{t\,Cos\,q\,u + \dots}\, Sin^s\,q\,r \dots Cos^n\,p\,q \dots Cos\left\{(s + \dots)\,\frac{1}{2}\,\pi - (n\,p + \dots + s\,r + \dots)\,q -\right.\right.$
$\left.\left. - t\,Sin\,q\,u - \dots\right\} - 2^{-n - \dots - s - \dots}\,(1 + e^{-2\,p\,q})^n \dots (1 - e^{-2\,q\,r})^s \dots e^{t\,e^{-q\,u} + \dots}\right]$ (H, 118).

10) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\Big[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots}+e^{t\,Cos\,qu+\dots}$$
$$Sin^s qr\dots Cos^n pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-t\,Sin\,qu-\dots\right\}-2\Big]\ (H, 118).$$

11) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\Big[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots}-e^{t\,Cos\,qu+\dots}$$
$$Sin^s qr\dots Cos^n pq\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-t\,Sin\,qu-\dots\right\}\Big]\ (H, 118).$$

12) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q}\Big[e^{t\,Cos\,qu+\dots}Sin^s qr\dots Cos^n pq\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)q-\right.$$
$$\left.-t\,Sin\,qu-\dots\right\}+2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots}\Big]\ (H, 118).$$

13) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x\,dx}{q^4-x^4}=\frac{\pi}{4q^2}\Big[e^{t\,Cos\,qu+\dots}Sin^s qr\dots Cos^n pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-\right.$$
$$\left.-t\,Sin\,qu-\dots\right\}-2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots-wq}\Big]\ (H, 123).$$

14) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{x^3\,dx}{q^4-x^4}=\frac{\pi}{4}\Big[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots-wq}+e^{t\,Cos\,qu+\dots}$$
$$Sin^s qr\dots Cos^n pq\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-t\,Sin\,qu-\dots\right\}\Big]\ (H, 123).$$

15) $$\int e^{t\,Cos\,ux+\dots} Sin^s rx\dots Cos^n px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$$
$$\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\Big[2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots-wq}-e^{t\,Cos\,qu+\dots}$$
$$Sin^s qr\dots Cos^n pq\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-t\,Sin\,qu-\dots\right\}\Big]\ (H, 122).$$

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16) $\int e^{t\,Cos\,ux+\dots}\,Sin^s\,rx\dots Cos^n\,px\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)x-t\,Sin\,ux-\dots\right\}$

$\frac{x^2\,dx}{q^4-x^4}=\frac{-\pi}{4q^3}\Big[e^{t\,Cos\,qu+\dots}\,Sin^s\,qr\dots Cos^n\,pq\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots+w)q-\right.$

$\left.-t\,Sin\,qu-\dots\right\}+2^{-n-\dots-s-\dots}(1+e^{-2pq})^n\dots(1-e^{-2qr})^s\dots e^{t\,e^{-qu}+\dots-wq}\Big]$ (H, 122).

F. Alg. rat. fract. à dén. $(q^2-x^2)^2$;
Expon. de Circ. Directe; TABLE 384. Lim. 0 et ∞.
Circulaire Directe.

1) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$

$\{sr\,Sin\,(s\,Sin\,qr+qr)+s_1r_1\,Sin\,(s_1\,Sin\,qr_1+qr_1)+\dots\}$ (H, 114).

2) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\Big[e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$

$\Big\{2\,Cos\,(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots)-q\,\{sr\,Sin\,(s\,Sin\,qr+qr)+$

$+s_1r_1\,Sin\,(s_1\,Sin\,qr_1+qr_1)+\dots\}\Big\}-2\Big]$ (H, 114).

3) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4q^3}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$

$[Sin\,(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots)-q\,\{sr\,Cos\,(s\,Sin\,qr+qr)+s_1r_1\,Cos\,(s_1\,Sin\,qr_1+qr_1)+\dots\}]$

(H, 113).

4) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Cos\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots)\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4q}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$

$[Sin\,(s\,Sin\,qr+s_1\,Sin\,qr_1+\dots)+q\,\{sr\,Cos\,(s\,Sin\,qr+qr)+s_1r_1\,Cos\,(s_1\,Sin\,qr_1+qr_1)+\dots\}]$

(H, 114).

5) $\int e^{s\,Cos\,rx+s_1\,Cos\,r_1x+\dots}\,Sin\,(s\,Sin\,rx+s_1\,Sin\,r_1x+\dots+r_ax)\frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{s\,Cos\,qr+s_1\,Cos\,qr_1+\dots}$

$[Cos\,qr_a\,.\{sr\,Sin\,(s\,Sin\,qr+qr)+s_1r_1\,Sin\,(s_1\,Sin\,qr_1+qr_1)+\dots\}+$

$+r_a\,Sin\,(s_a\,Sin\,qr_a+qr_a)+s_ar_a\,Cos\,(s_a\,Sin\,qr_a+qr_a)\,.\,Sin\,qr_a]$

(H, 116).

6) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots+r_a\,x)\,\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\,e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$
$[2\,Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots+q\,r_a)-q\,Cos\,q\,r_a.\{s\,r\,Sin\,(s\,Sin\,q\,r+q\,r)+$
$+s_1\,r_1\,Sin\,(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}-q\,r_a\,\{Sin\,(s_a\,Sin\,q\,r_a+q\,r_a)+$
$+s_a\,Cos\,(s_a\,Sin\,q\,r_a+q\,r_a).Sin\,q\,r_a\}]$ (H, 116).

7) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots+r_a\,x)\,\frac{dx}{(q^2-x^2)^2}=\frac{\pi}{4\,q^3}\,e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$
$[Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots+q\,r_a)-q\,Cos\,q\,r_a.\{s\,r\,Cos\,(s\,Sin\,q\,r+q\,r)+$
$+s_1\,r_1\,Cos\,(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}-q\,r_a\,\{Cos\,(s_a\,Sin\,q\,r_a+q\,r_a)-$
$-s_a\,Sin\,(s_a\,Sin\,q\,r_a+q\,r_a).Sin\,q\,r_a\}]$ (H, 116).

8) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\dots} Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\dots+r_a\,x)\,\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4\,q}\,e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\dots}$
$[Sin\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\dots+q\,r_a)+q\,Cos\,q\,r_a.\{s\,r\,Cos\,(s\,Sin\,q\,r+q\,r)+$
$+s_1\,r_1\,Cos\,(s_1\,Sin\,q\,r_1+q\,r_1)+\dots\}+q\,r_a\,\{Cos\,(s_a\,Sin\,q\,r_a+q\,r_a)-$
$-s_a\,Sin\,(s_a\,Sin\,q\,r_a+q\,r_a).Sin\,q\,r_a\}]$ (H, 116).

9) $\int e^{t\,Cos\,u\,x+\dots} Sin^s\,r\,x\dots Cos^n\,p\,x\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,u\,x-\dots\right\}$
$\frac{x\,dx}{(q^2-x^2)^2}=\frac{-\pi}{4\,q}\,e^{t\,Cos\,q\,u+\dots} Sin^s\,q\,r\dots Cos^n\,p\,q\dots\Big[n\,p\,Sec\,p\,q.Sin\{(n+1)\,p\,q\}+\dots+s\,r\,Cosec\,q\,r.$
$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)\,q\,r\right\}+\dots+t\,u\,Sin\,(t\,Sin\,q\,u+q\,u)+\dots\Big]$ (H, 119).

10) $\int e^{t\,Cos\,u\,x+\dots} Sin^s\,r\,x\dots Cos^n\,p\,x\dots Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,u\,x-\dots\right\}$
$\frac{x^3\,dx}{(q^2-x^2)^2}=\frac{\pi}{4}\Big[2^{-n-\dots-s-\dots}-e^{t\,Cos\,q\,u+\dots} Sin^s\,q\,r\dots Cos^n\,p\,q\dots Cos\left\{(s-1)\frac{1}{2}\pi-\right.$
$\left.-(np+\dots+sr+\dots)\,q-t\,Sin\,q\,u-\dots\right\}-q\,\Big\{n\,p\,Sec\,p\,q.Sin\{(n+1)\,p\,q\}+\dots+s\,r\,Cosec\,q\,r.$
$Sin\left\{(s-1)\frac{1}{2}\pi-(s+1)\,q\,r\right\}+\dots+t\,u\,Sin\,(t\,Sin\,q\,u+q\,u)+\dots\Big\}\Big]$ (H, 119).

11) $\int e^{t\,Cos\,u\,x+\dots} Sin^s\,r\,x\dots Cos^n\,p\,x\dots Cos\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)x-t\,Sin\,u\,x-\dots\right\}$
$\frac{dx}{(q^2-x^2)^2}=\frac{-\pi}{4\,q^3}\,e^{t\,Cos\,q\,u+\dots} Sin^s\,q\,r\dots Cos^n\,p\,q\dots\Big[Sin\left\{(s+\dots)\frac{1}{2}\pi-(np+\dots+sr+\dots)\,q-\right.$

$$-t\,Sin\,q\,u-\ldots\Big\}+q\,\Big\{n\,p\,Sec\,p\,q\,.\,Cos\,\{(n+1)\,p\,q\}+\ldots+s\,r\,Cosec\,q\,r\,.\,Cos\,\Big\{(s-1)\frac{1}{2}\pi-$$
$$-(s+1)\,q\,r\Big\}+\ldots+t\,u\,Cos\,(t\,Sin\,q\,u+q\,u)+\ldots\Big\}\Big]\ \text{(H, 119).}$$

12) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Cos\,\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots)\,x-t\,Sin\,u\,x-\ldots\Big\}$$
$$\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4\,q}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots\Big[Sin\,\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots)\,q-$$
$$-t\,Sin\,q\,u-\ldots\Big\}-q\,\Big\{n\,p\,Sec\,p\,q\,.\,Cos\,\{(n+1)\,p\,q\}+\ldots+s\,r\,Cosec\,q\,r\,.\,Cos\,\Big\{(s-1)\frac{1}{2}\pi-$$
$$-(s+1)\,q\,r\Big\}+\ldots+t\,u\,Cos\,(t\,Sin\,q\,u+q\,u)+\ldots\Big\}\Big]\ \text{(H, 119).}$$

13) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\,\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots+r_a)\,x-t\,Sin\,u\,x-\ldots\Big\}$$
$$\frac{x\,dx}{(q^2-x^2)^2}=-\frac{\pi}{2\,q}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots\Big\{Cos\,q\,r_a\,.\Big[n\,p\,Sec\,p\,q\,.\,Sin\,\{(n+1)\,p\,q\}+\ldots+$$
$$+s\,r\,Cosec\,q\,r\,.\,Sin\,\Big\{(s-1)\frac{1}{2}\pi-(s+1)\,q\,r\Big\}+\ldots+t\,u\,Sin\,(t\,Sin\,q\,u+q\,u)+\ldots\Big]+$$
$$+r_a\,[Sin\,(t_a\,Sin\,q\,r_a+q\,r_a)+t_a\,Cos\,(t_a\,Sin\,q\,r_a+q\,r_a)\,.\,Sin\,q\,r_a]\Big\}\ \text{(H, 124).}$$

14) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\,\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots+r_a)\,x-t\,Sin\,u\,x-\ldots\Big\}$$
$$\frac{x^3\,dx}{(q^2-x^2)^2}=-\frac{\pi}{2}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots\Big\{Cos\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots+r_a)\,q-$$
$$-t\,Sin\,q\,u-\ldots\Big\}+q\,Cos\,q\,r_a.\Big[n\,p\,Sec\,p\,q\,.\,Sin\,\{(n+1)\,p\,q\}+\ldots+s\,r\,Cosec\,q\,r\,.\,Sin\,\Big\{(s-1)\frac{1}{2}\pi-$$
$$-(s+1)\,q\,r\Big\}+\ldots+t\,u\,Sin\,(t\,Sin\,q\,u+q\,u)+\ldots\Big]+q\,r_a\,.\,[Sin\,(t_a\,Sin\,q\,r_a+q\,r_a)+$$
$$+t_a\,Cos\,(t_a\,Sin\,q\,r_a+q\,r_a)\,.\,Sin\,q\,r_a]\Big\}\ \text{(H, 125).}$$

15) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Cos\,\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots+r_a)\,x-t\,Sin\,u\,x-\ldots\Big\}$$
$$\frac{dx}{(q^2-x^2)^2}=\frac{-\pi}{4\,q^3}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots\Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(n\,p+\ldots+s\,r+\ldots+r_a)\,q-$$

$$-t\,Sin\,q\,u-\ldots\Big\}+q\,Cos\,q\,r_a.\Big[np\,Sec\,p\,q\,.\,Cos\,\{(n+1)p\,q\}+\ldots+s\,r\,Cosec\,q\,r\,.Cos\Big\{(s-1)\frac{1}{2}\pi-$$

$$-(s+1)q\,r\Big\}+\ldots+t\,u\,Cos(Sin\,q\,u+q\,u)+\ldots\Big]+q\,r_a.\big[Cos\,(t_a\,Sin\,q\,r_a+q\,r_a)-$$

$$-t_a\,Sin\,(t_a\,Sin\,q\,r_a+q\,r_a)\,.\,Sin\,q\,r_a\big]\Big\}\quad (H,\ 124).$$

16) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Cos\Big\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+s\,r+\ldots+r_a)x-t\,Sin\,u\,x-\ldots\Big\}$$

$$\frac{x^2\,dx}{(q^2-x^2)^2}=\frac{\pi}{4q}e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots\Big\{Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+s\,r+\ldots+r_a)q-$$

$$-t\,Sin\,q\,u-\ldots\Big\}-q\,Cos\,q\,r_a.\Big[np\,Sec\,p\,q.Cos\{(n+1)p\,q\}+\ldots+s\,r\,Cosec\,q\,r\,.Cos\Big\{(s-1)\frac{1}{2}\pi-$$

$$-(s+1)q\,r\Big\}+\ldots+t\,u\,Cos\,(t\,Sin\,q\,u+q\,u)+\ldots\Big]-q\,r_a.\big[Cos\,(t_a\,Sin\,q\,r_a+q\,r_a)-$$

$$-t_a\,Sin\,(t_a\,Sin\,q\,r_a+q\,r_a)\,.\,Sin\,q\,r_a\big]\Big\}\quad (H,\ 124).$$

F. Alg. rat. fract. à dén. comp.;
Expon. de Circ. Directe; TABLE 385. Lim. 0 et ∞.
Circulaire Directe.

1) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{dx}{x(q^2+x^2)}=\frac{\pi}{2q^2}\big(e^{s+s_1+\cdots}-$$

$$-e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\cdots}\big)\quad (H,\ 153).$$

2) $$\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{dx}{x\,(q^2+x^2)}=\frac{\pi}{2\,q^2}\big(e^{s+s_1+\cdots}-$$

$$-e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots-p\,q}\big)\quad (H,\ 155).$$

3) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+s\,r+\ldots)x-t\,Sin\,u\,x-\ldots\Big\}$$

$$\frac{dx}{x\,(q^2+x^2)}=\frac{\pi}{2^{1+n+\ldots+s+\ldots}q^2}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{t\,e^{-qu}+\cdots}\quad (H,\ 157).$$

4) $$\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\Big\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+s\,r+\ldots+w)x-t\,Sin\,u\,x-\ldots\Big\}$$

$$\frac{dx}{x\,(q^2+x^2)}=\frac{\pi}{2^{1+n+\ldots+s+\ldots}q^2}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{t\,e^{-qu}+\ldots-qw}\quad (H,\ 162).$$

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5) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\,\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\,\{e^{s+s_1+\cdots}-$

$-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}\,Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\}$ (H, 153).

6) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\,\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\,\{e^{s+s_1+\cdots}-$

$-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}\,Cos\,(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+p\,q)\}$ (H, 155).

7) $\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,u\,x-\ldots\right\}$

$\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-\right.$

$\left.-t\,Sin\,q\,u-\ldots\right\}$ (H, 157).

8) $\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)x-t\,Sin\,u\,x-.\right\}$

$\frac{dx}{x(q^2-x^2)}=\frac{\pi}{2q^2}\,e^{t\,Cos\,q\,u+\cdots}\,Sin^s\,q\,r\ldots Cos^n\,p\,q\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)q-\right.$

$\left.-t\,Sin\,q\,u-\ldots\right\}$ (H, 162).

9) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\,\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{8q^4}\,\{e^{s+s_1+\cdots}-$

$-e^{s\,e^{-q\,r}\,Cos\,q\,r+s_1\,e^{-q\,r_1}\,Cos\,q\,r_1+\cdots}\,Cos\,(s\,e^{-q\,r}\,Sin\,q\,r+s_1\,e^{-q\,r_1}\,Sin\,q\,r_1+\ldots)\}$ (H, 153).

10) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots}\,Sin\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\,\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{8q^4}\,\{e^{s+s_1+\cdots}-$

$-e^{s\,e^{-q\,r}\,Cos\,q\,r+s_1\,e^{-q\,r_1}\,Cos\,q\,r_1+\ldots-p\,q}\,Cos\,(s\,e^{-q\,r}\,Sin\,q\,r+s_1\,e^{-q\,r_1}\,Sin\,q\,r_1+\ldots+p\,q)\}$

(H, 155).

11) $\int e^{t\,Cos\,u\,x+\cdots}\,Sin^s\,r\,x\ldots Cos^n\,p\,x\ldots Sin\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)x-t\,Sin\,u\,x-\ldots\right\}$

$\frac{dx}{x(4q^4+x^4)}=\frac{\pi}{2^{3+n+\ldots+s+\ldots}q^4}\,(1+e^{-2pq}\,Cos\,2pq+e^{-4pq})^{\frac{1}{2}n}\ldots(1-e^{-2qr}\,Cos\,2qr+$

$+e^{-4qr})^{\frac{1}{2}s}\ldots e^{t\,e^{-qu}\,Cos\,q\,u+\cdots}\,Cos\left\{n\,Arctg\,\frac{Sin\,2pq}{e^{2pq}+Cos\,2pq}+\ldots-s\,Arctg\,\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}-\ldots+\right.$

$\left.+t\,e^{-qu}\,Sin\,q\,u+\ldots\right\}$ (H, 157).

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12) $\int e^{t \operatorname{Cos} u x + \cdots} \operatorname{Sin}^s r x \ldots \operatorname{Cos}^n p x \ldots \operatorname{Sin}\left\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+w)x - t \operatorname{Sin} u x - \ldots\right\}$

$$\frac{dx}{x(4q^4+x^4)} = \frac{\pi}{2^{3+n+\ldots+s+\ldots}q^4}(1+e^{-2pq}\operatorname{Cos}2pq+e^{-4pq})^{\frac{1}{2}n}\ldots(1-e^{-2qr}\operatorname{Cos}2qr+$$
$$+e^{-4qr})^{\frac{1}{2}s}\ldots e^{t e^{-qu}\operatorname{Cos}qu+\ldots-qw}\operatorname{Cos}\left\{n\operatorname{Arctg}\frac{\operatorname{Sin}2pq}{e^{2pq}+\operatorname{Cos}2pq}+\ldots-s\operatorname{Arctg}\frac{\operatorname{Sin}2qr}{e^{2qr}-\operatorname{Cos}2qr}-\ldots+\right.$$
$$\left.+te^{-qu}\operatorname{Sin}qu+\ldots-qw\right\}$$ (H, 162).

13) $\int e^{s \operatorname{Cos} r x + s_1 \operatorname{Cos} r_1 x + \cdots} \operatorname{Sin}(s \operatorname{Sin} r x + s_1 \operatorname{Sin} r_1 x + \ldots)\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left\{2e^{s+s_1+\cdots}-\right.$

$$\left.-e^{s e^{-qr}+s_1 e^{-qr_1}+\ldots} - e^{s\operatorname{Cos}qr+s_1\operatorname{Cos}qr_1+\cdots}\operatorname{Cos}(s\operatorname{Sin}qr+s_1\operatorname{Sin}qr_1+\ldots)\right\}$$ (H, 153).

14) $\int e^{s \operatorname{Cos} r x + s_1 \operatorname{Cos} r_1 x + \cdots} \operatorname{Sin}(s \operatorname{Sin} r x + s_1 \operatorname{Sin} r_1 x + \ldots + px)\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left\{2e^{s+s_1+\cdots}-\right.$

$$\left.-e^{s e^{-qr}+s_1 e^{-qr_1}+\ldots-pq} - e^{s\operatorname{Cos}qr+s_1\operatorname{Cos}qr_1+\cdots}\operatorname{Cos}(s\operatorname{Sin}qr+s_1\operatorname{Sin}qr_1+\ldots+pq)\right\}$$
(H, 155).

15) $\int e^{t \operatorname{Cos} u x + \cdots} \operatorname{Sin}^s r x \ldots \operatorname{Cos}^n p x \ldots \operatorname{Sin}\left\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots)x - t \operatorname{Sin} u x - \ldots\right\}$

$$\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left[2^{-n-\ldots-s-\ldots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\ldots}+e^{t\operatorname{Cos}qu+\ldots}\right.$$
$$\left.\operatorname{Sin}^s qr\ldots\operatorname{Cos}^n pq\ldots\operatorname{Cos}\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots)q-t\operatorname{Sin}qu-\ldots\right\}\right]$$ (H, 157).

16) $\int e^{t \operatorname{Cos} u x + \cdots} \operatorname{Sin}^s r x \ldots \operatorname{Cos}^n p x \ldots \operatorname{Sin}\left\{(s+\ldots)\frac{1}{2}\pi - (np+\ldots+sr+\ldots+w)x - t \operatorname{Sin} u x - \ldots\right\}$

$$\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left[2^{-n-\ldots-s-\ldots}(1+e^{-2pq})^n\ldots(1-e^{-2qr})^s\ldots e^{te^{-qu}+\ldots-qw}+e^{t\operatorname{Cos}qu+\ldots}\right.$$
$$\left.\operatorname{Sin}^s qr\ldots\operatorname{Cos}^n pq\ldots\operatorname{Cos}\left\{(s+\ldots)\frac{1}{2}\pi-(np+\ldots+sr+\ldots+w)q-t\operatorname{Sin}qu-\ldots\right\}\right]$$ (H, 162).

F. Alg. rat. fract.; Exponentielle; Circulaire Directe. Autre forme. TABLE 386. Lim. 0 et ∞.

1) $\int e^{-p\sqrt{x}}\operatorname{Cos}(p\sqrt{x})\frac{dx}{q^2+x^2} = \frac{\pi}{2q}e^{-p\sqrt{2q}}$

2) $\int e^{-p\sqrt{x}}\operatorname{Cos}(p\sqrt{x})\frac{dx}{q^2-x^2} = \frac{\pi}{2q}e^{-p\sqrt{q}}\operatorname{Sin}(p\sqrt{q})$

3) $\int e^{-p\sqrt{x}}\, Cos(p\sqrt{x})\frac{dx}{q^4+x^4}=\frac{\pi}{2q^3\sqrt{2}}e^{-p\sqrt{q}.\sqrt{\frac{2+\sqrt{2}}{2}}}\left\{Sin\left(p\sqrt{q}.\sqrt{\frac{2-\sqrt{2}}{2}}\right)+\right.$

$\left.+Cos\left(p\sqrt{q}.\sqrt{\frac{2-\sqrt{2}}{2}}\right)\right\}$

4) $\int\frac{(r+\sqrt{\frac{1}{2}x})\,Cos(p\sqrt{\frac{1}{2}x})-\sqrt{\frac{1}{2}x}.\,Sin(p\sqrt{\frac{1}{2}x})}{x+r\sqrt{2x}+r^2}\;\frac{e^{-p\sqrt{\frac{1}{2}x}}}{q^2+x^2}dx=\frac{\pi}{2q}\;\frac{e^{-p\sqrt{q}}}{r+\sqrt{q}}$

5) $\int\frac{(r+\sqrt{\frac{1}{2}x})\,Cos(p\sqrt{\frac{1}{2}x})-\sqrt{\frac{1}{2}x}.\,Sin(p\sqrt{\frac{1}{2}x})}{x+r\sqrt{2x}+r^2}\;\frac{e^{-p\sqrt{\frac{1}{2}x}}}{q^2-x^2}dx=$

$=\frac{\pi}{q}\,e^{-p\sqrt{\frac{1}{2}q}}\,\frac{(r+\sqrt{\frac{1}{2}q})\,Sin(p\sqrt{\frac{1}{2}q})-\sqrt{\frac{1}{2}q}.\,Cos(p\sqrt{\frac{1}{2}q})}{q+r\sqrt{2q}+r^2}$

Sur 1) à 5) voyez Russell, C. & D. M. J. 8, 156.

6) $\int e^{-px}\,Cos px\frac{x\,dx}{q^4+x^4}=\frac{\pi}{4q^2}e^{-pq\sqrt{2}}$ V. T. 386, N. 1.

7) $\int e^{-px}\,Cos px\frac{x\,dx}{q^4-x^4}=\frac{\pi}{2q^2}e^{-pq}\,Sin pq$ V. T. 386, N. 2.

8) $\int e^{-px}\,Cos px\frac{x\,dx}{q^8+x^8}=\frac{\pi}{4q^6\sqrt{2}}e^{-pq\sqrt{\frac{2+\sqrt{2}}{2}}}\left\{Sin\left(pq\sqrt{\frac{2-\sqrt{2}}{2}}\right)+Cos\left(pq\sqrt{\frac{2-\sqrt{2}}{2}}\right)\right\}$

V. T. 386, N. 3.

9) $\int\frac{(r+x)\,Cos px-x\,Sin px}{2x^2+2rx+r^2}\;\frac{x\,e^{-px}}{q^4+x^4}dx=\frac{\pi}{2q^2}\;\frac{e^{-2pq}}{r+2q}$ V. T. 386, N. 4.

10) $\int\frac{(r+x)\,Cos px-x\,Sin px}{2x^2+2rx+r^2}\;\frac{x\,e^{-px}}{q^4-x^4}dx=\frac{\pi}{q^2}e^{-pq}\frac{(q+r)\,Sin pq-q\,Cos pq}{2q^2+2qr+r^2}$ V. T. 386, N. 5.

F. Alg. rat. fract. monôme; Expon. en dén. binôme; Circul. Dir. au numér. | TABLE 387. | Lim. 0 et ∞.

1) $\int\frac{Sin px}{e^{qx}+e^{-qx}}\;\frac{dx}{x}=Arctg\left(e^{\frac{p\pi}{2q}}\right)$ V. T. 264, N. 14.

2) $\int\frac{Cos px}{e^{qx}-e^{-qx}}\;\frac{dx}{x}=-\frac{1}{2}\,l\left(e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}\right)$ V. T. 264, N. 6.

3) $\int\frac{Sin px}{1-e^{-x}}\;\frac{dx}{x}=-\sum_0^\infty Arctg\left(\frac{p}{n}\right)$ V. T. 264, N. 5.

4) $\int\frac{Cos px}{1-e^{-x}}\;\frac{dx}{x}=-\frac{1}{2}\sum_0^\infty l(n^2+p^2)$ V. T. 264, N. 13.

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5) $\int \frac{Sin^2 qx}{1-e^x} \frac{dx}{x} = \frac{1}{4} l \frac{4q\pi}{e^{2q\pi}-e^{-2q\pi}}$ 6) $\int \frac{e^{px}-e^{-px}}{e^x-e^{-x}} \frac{Sin\, qx}{x} dx = Arctg\left(\frac{e^{q\pi}-1}{e^{q\pi}+1} Tg \frac{1}{2} p\pi\right)$

7) $\int \frac{e^{px}+e^{-px}}{e^x-e^{-x}} \frac{Sin^2 qx}{x} dx = \frac{1}{4} l \frac{e^{2q\pi}+2\, Cos\, p\pi + e^{-2q\pi}}{2(1+Cos\, p\pi)}$

Sur 5) à 7) voyez Winckler, Sitz. Ber. Wien. 21, 389.

8) $\int \frac{e^{qx}-e^{-qx}}{e^{qx}+e^{-qx}} \frac{Cos\, px}{x} dx = l \frac{1+e^{-\frac{p\pi}{2q}}}{1-e^{-\frac{p\pi}{2q}}}$ V. T. 265, N. 1.

9) $\int \frac{e^{qx}+e^{-qx}}{e^{qx}-e^{-qx}} \frac{Cos\, px}{x} dx = -l\left(e^{\frac{p\pi}{2q}}-e^{-\frac{p\pi}{2q}}\right)$ V. T. 265, N. 3.

10) $\int \frac{1-Cos\, px}{e^{2\pi x}-1} \frac{dx}{x} = \frac{1}{4} p + \frac{1}{2} l \frac{1-e^{-p}}{p}$ Schlömilch, Schl. Z. 6, 407.

F. Alg. rat. fract. binôme;
Expon. en dén. bin. e^x+e^{-x}; TABLE 388. Lim. 0 et ∞.
Circul. Dir. au numér.

1) $\int \frac{Sin\, qx}{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}} \frac{x\, dx}{1+x^2} = \frac{\pi}{2\sqrt{2}} e^{-q} + \frac{e^q-e^{-q}}{4\sqrt{2}} l \frac{e^q+\sqrt{2}+e^{-q}}{e^q-\sqrt{2}+e^{-q}} - \frac{e^q+e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q-e^{-q}}\right)$

V. T. 389, N. 8.

2) $\int \frac{Sin\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{x\, dx}{1+x^2} = \frac{1}{2} q e^{-q} - \frac{e^q-e^{-q}}{4} l(1+e^{-2q})$ V. T. 389, N. 10.

3) $\int \frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{Sin\, qx}{1+x^2} dx = q e^{-q} - \frac{e^q-e^{-q}}{2} l(1-e^{-2q})$ V. T. 389, N. 9.

4) $\int \frac{e^{\frac{1}{2}\pi x}-1}{e^{\frac{1}{2}\pi x}+1} \frac{Sin\, qx}{1+x^2} dx = -\frac{\pi}{2} e^q + \frac{e^q-e^{-q}}{2} l \frac{e^q+1}{e^q-1} + (e^q+e^{-q}) Arctg(e^q)$ V. T. 388, N. 8.

5) $\int \frac{Cos\, qx}{e^{\frac{1}{4}\pi x}+e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = \frac{\pi}{2\sqrt{2}} e^{-q} - \frac{e^q+e^{-q}}{4\sqrt{2}} l \frac{e^q+\sqrt{2}+e^{-q}}{e^q-\sqrt{2}+e^{-q}} + \frac{e^q-e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q-e^{-q}}\right)$

V. T. 389, N. 18.

6) $\int \frac{Cos\, qx}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{1}{2} q e^{-q} + \frac{e^q+e^{-q}}{4} l(1+e^{-2q})$ V. T. 389, N. 20.

7) $\int \frac{e^{\frac{1}{2}\pi x}-e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x}+e^{-\frac{1}{2}\pi x}} \frac{x\, Cos\, qx}{1+x^2} dx = -q e^{-q} - \frac{e^q-e^{-q}}{2} l(1-e^{-2q})$ V. T. 389, N. 19.

8) $\int \frac{e^{\frac{1}{2}\pi x}-1}{e^{\frac{1}{2}\pi x}+1} \frac{x\, Cos\, qx}{1+x^2} dx = -\frac{\pi}{2} e^q + \frac{e^q+e^{-q}}{2} l \frac{e^q+1}{e^q-1} + (e^q-e^{-q}) Arctg(e^q)$ V. T. 389, N. 17.

1) $\int \frac{Sin\, q x}{e^{\frac{1}{4}\pi x} - e^{-\frac{1}{4}\pi x}} \frac{dx}{1+x^2} = -\frac{e^{-q}}{2\sqrt{2}} + \frac{e^q - e^{-q}}{4\sqrt{2}} l \frac{e^q + \sqrt{2} + e^{-q}}{e^q - \sqrt{2} + e^{-q}} + \frac{e^q + e^{-q}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^q - e^{-q}}\right)$ (IV, 510).

2) $\int \frac{Sin\, q x}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{dx}{1+x^2} = \frac{e^q + e^{-q}}{2} Arctg(e^{-q}) - \frac{\pi}{4} e^{-q}$ (IV, 510).

3) $\int \frac{e^{\frac{1}{2}\pi x} + 1}{e^{\frac{1}{2}\pi x} - 1} \frac{Sin\, p x}{1+x^2} dx = -\frac{\pi}{2} e^{-q} + \frac{e^q - e^{-q}}{2} l \frac{e^q + 1}{e^q - 1} + (e^q + e^{-q}) Arctg(e^{-q})$ (IV, 510).

4) $\int \frac{Sin\, q x}{e^{\pi x} - e^{-\pi x}} \frac{dx}{1+x^2} = -\frac{q}{4} e^{-q} + \frac{e^q - e^{-q}}{4} l(1 + e^{-q})$ V. T. 389, N. 9.

5) $\int \frac{e^{\pi x} + e^{-\pi x}}{e^{\pi x} - e^{-\pi x}} \frac{Sin\, q x}{1+x^2} dx = \frac{q}{2} e^{-q} + \frac{e^q - e^{-q}}{2} l(1 - e^{-q})$ V. T. 389, N. 9.

6) $\int \frac{e^{\pi x} + 1}{e^{\pi x} - 1} \frac{Sin\, q x}{1+x^2} dx = \frac{e^q - e^{-q}}{2} l \frac{e^q + 1}{e^q - 1}$ (IV, 510).

7) $\int \frac{e^{px} + e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{Sin\, q x}{1+x^2} dx = -\frac{\pi}{2} e^{-q} Cos p + \frac{e^q - e^{-q}}{4} Sin p . l \frac{e^q + 2\, Sin p + e^{-q}}{e^q - 2\, Sin p + e^{-q}} +$
$+ \frac{e^q + e^{-q}}{2} Cos p . Arctg\left(\frac{2\, Cos p}{e^q - e^{-q}}\right) \left[p^2 \leqq \frac{1}{4}\pi^2\right]$ (IV, 510).

8) $\int \frac{e^{px} - e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, Sin\, q x}{1+x^2} dx = \frac{\pi}{2} e^{-q} Sin p + \frac{e^q - e^{-q}}{4} Cos p . l \frac{e^q + 2\, Sin p + e^{-q}}{e^q - 2\, Sin p + e^{-q}} -$
$- \frac{e^q + e^{-q}}{2} Sin p . Arctg\left(\frac{2\, Cos p}{e^q - e^{-q}}\right) \left[p^2 < \frac{1}{4}\pi^2\right]$ V. T. 389, N. 18.

9) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{Sin\, q x}{1+x^2} dx = -\frac{1}{2} e^{-q}(q\, Cos p + p\, Sin p) + \frac{e^q - e^{-q}}{4} Cos p . l(1 + 2e^{-q} Cos p + e^{-2q}) +$
$+ \frac{e^q + e^{-q}}{2} Sin p . Arctg\left(\frac{Sin p}{e^q + Cos p}\right) [p^2 \leqq \pi^2]$ (IV, 511).

10) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Sin\, p x}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Sin p - p\, Cos p) - \frac{e^q - e^{-q}}{4} Sin p . l(1 + 2e^{-q} Cos p + e^{-2q}) +$
$+ \frac{e^q + e^{-q}}{2} Cos p . Arctg\left(\frac{Sin p}{e^q + Cos p}\right) [p^2 < \pi^2]$ V. T. 389, N. 20.

11) $\int \frac{Cos\, q x}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, dx}{1+x^2} = \frac{e^q - e^{-q}}{2} Arctg(e^{-q}) + \frac{\pi}{4} e^{-q} - \frac{1}{2}$ V. T. 389, N. 17.

12) $\int \frac{e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, Cos\, q x}{1+x^2} dx = -1 + \frac{e^q + e^{-q}}{2} l \frac{1 + e^{-q}}{1 - e^{-q}}$ V. T. 389, N. 19.

13) $\int \frac{e^{\frac{1}{2}\pi x} + 1}{e^{\frac{1}{2}\pi x} - 1} \frac{x\, Cos\, q x}{1+x^2} dx = -2 + \frac{\pi}{2} e^{-q} + \frac{e^q + e^{-q}}{2} l \frac{e^q + 1}{e^q - 1} + (e^q - e^{-q}) Arctg(e^{-q})$
V. T. 389, N. 17.

14) $\int \frac{Cos\, q\, x}{e^{\pi x} - e^{-\pi x}} \frac{x\, dx}{1+x^2} = -\frac{1}{4} + \frac{1}{4} q\, e^{-q} + \frac{e^q + e^{-q}}{4} l(1+e^{-q})$ V. T. 389, N. 21.

15) $\int \frac{e^{\pi x} + e^{-\pi x}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Cos\, q\, x}{1+x^2} dx = -\frac{1}{2} - \frac{q}{2} e^{-q} - \frac{e^q + e^{-q}}{2} l(1-e^{-q})$ V. T. 389, N. 21.

16) $\int \frac{e^{\pi x} + 1}{e^{\pi x} - 1} \frac{x\, Cos\, q\, x}{1+x^2} dx = -1 + \frac{e^q - e^{-q}}{2} l \frac{e^q + 1}{e^q - 1}$ V. T. 389, N. 17.

17) $\int \frac{e^{px} + e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{x\, Cos\, q\, x}{1+x^2} dx = -1 + \frac{\pi}{2} e^{-q}\, Cos\, p + \frac{e^q + e^{-q}}{4} Sin\, p \,.\, l \frac{e^q + 2\, Sin\, p + e^{-q}}{e^q - 2\, Sin\, p + e^{-q}} +$

$+ \frac{e^q - e^{-q}}{2} Cos\, p \,.\, Arctg \left(\frac{2\, Cos\, p}{e^q - e^{-q}}\right) \left[p^2 \leqq \frac{1}{4}\pi^2\right]$ (IV, 512).

18) $\int \frac{e^{px} - e^{-px}}{e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x}} \frac{Cos\, q\, x}{1+x^2} dx = \frac{\pi}{2} e^{-q}\, Sin\, p - \frac{e^q + e^{-q}}{4} Cos\, p \,.\, l \frac{e^q + 2\, Sin\, p + e^{-q}}{e^q - 2\, Sin\, p + e^{-q}} +$

$+ \frac{e^q - e^{-q}}{2} Sin\, p \,.\, Arctg \left(\frac{2\, Cos\, p}{e^q - e^{-q}}\right) \left[p^2 < \frac{1}{4}\pi^2\right]$ (IV, 512).

19) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Cos\, q\, x}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Cos\, p + p\, Sin\, p) - \frac{1}{2} + \frac{e^q + e^{-q}}{4} Cos\, p \,.\, l(1 + 2\, e^{-q}\, Cos\, p + e^{-2q}) +$

$+ \frac{e^q - e^{-q}}{2} Sin\, p \,.\, Arctg \left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 \leqq \pi^2]$ V. T. 389, N. 9.

20) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{Cos\, q\, x}{1+x^2} dx = \frac{1}{2} e^{-q}(q\, Sin\, p - p\, Cos\, p) + \frac{e^q + e^{-q}}{4} Sin\, p \,.\, l(1 + 2\, e^{-q}\, Cos\, p + e^{-2q}) -$

$- \frac{e^q - e^{-q}}{2} Cos\, p \,.\, Arctg \left(\frac{Sin\, p}{e^q + Cos\, p}\right) [p^2 < \pi^2]$ (IV, 512).

21) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{Sin\, q\, x}{r^2 + x^2} dx = \frac{1}{2r^2} - \frac{\pi}{2r} \frac{e^{-qr}\, Cos\, p\, r}{Sin\, r\pi} + \sum_1^\infty (-1)^{n-1} \frac{e^{-nq}\, Cos\, n\, p}{n^2 - r^2}$ $[0 \leqq p \leqq \pi]$

(IV, 512).

22) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{Cos\, q\, x}{r^2 + x^2} dx = \frac{\pi}{2r} \frac{e^{-qr}\, Sin\, p\, r}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{e^{-nq}\, Sin\, n\, p}{n^2 - r^2}$ $[0 < p < \pi]$ (IV, 512).

23) $\int \frac{e^{px} - e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Sin\, q\, x}{r^2 + x^2} dx = \frac{\pi}{2} \frac{e^{-qr}\, Sin\, p\, r}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{n\, e^{-nq}\, Sin\, n\, p}{n^2 - r^2}$ $[0 < p < \pi]$

V. T. 389, N. 22.

24) $\int \frac{e^{px} + e^{-px}}{e^{\pi x} - e^{-\pi x}} \frac{x\, Cos\, q\, x}{r^2 + x^2} dx = \frac{\pi}{2} \frac{e^{-qr}\, Cos\, p\, r}{Sin\, r\pi} + \sum_1^\infty (-1)^n \frac{n\, e^{-nq}\, Cos\, n\, p}{n^2 - r^2}$ $[0 \leqq p \leqq \pi]$

V. T. 389, N. 21.

F. Alg. rat. fract. binôme; Exp. en dén. polynôme; Circulaire Directe.	Autre forme. TABLE 390.	Lim. 0 et ∞.

1) $\int \frac{Sin\, x}{e^{qx} + 2\, Cos\, x + e^{-qx}} \frac{x\, dx}{x^2 - \pi^2} = \frac{1}{2} Arctg\left(\frac{1}{q}\right) - \frac{1}{2q}$ (IV, 512).

2) $\int \frac{Sin\, x}{e^{qx} - 2\, Cos\, x + e^{-qx}} \frac{x\, dx}{x^2 - \pi^2} = \frac{1}{2} \frac{q}{1+q^2} - \frac{1}{2} Arctg\left(\frac{1}{q}\right)$ (IV, 512).

3) $\int \frac{e^{qx} + e^{-qx}}{e^{2qx} - 2\, Cos\, 2x + e^{-2qx}} \frac{x\, Sin\, x}{x^2 - \pi^2} dx = \frac{1}{2q} \frac{1}{1+q^2}$ V. T. 390, N. 1, 2.

4) $\int \frac{Sin\, 2x}{e^{2qx} - 2\, Cos\, 2x + e^{-2qx}} \frac{x\, dx}{x^2 - \pi^2} = \frac{1}{4q} \frac{1+2q^2}{1+q^2} - \frac{1}{2} Arctg\left(\frac{1}{q}\right)$ V. T. 390, N. 1, 2.

5) $\int \frac{e^{\pi x} + e^{-\pi x}}{e^{\pi x} - e^{-\pi x}} \frac{Cos\, qx}{1+x^2} \frac{dx}{x} = \frac{1}{2} \frac{1 - q + q e^{-q}}{1 - e^{-q}} + \frac{1}{2} (e^{\frac{1}{2}q} - e^{-\frac{1}{2}q})^2\, l(1 - e^{-q})$

V. T. 387, N. 9 et T. 389, N. 15.

6) $\int \frac{Cos\, qx - e^{-qx}}{x^4 + r^4} \frac{dx}{x} = \frac{\pi}{2r^4} e^{-\frac{1}{2}qr\sqrt{2}} Sin\left(\frac{1}{2} qr\sqrt{2}\right)$ (IV, 512).

F. Alg. rat. fract.; Exponentielle; Circ. Dir. au dén. monôme.	TABLE 391.	Lim. 0 et ∞.

1) $\int e^{-Tg^2 x} \frac{Sin\, x}{Cos^2 x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

2) $\int e^{-Tg^2 x} \frac{Sin\, x}{Cos^3 x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

3) $\int e^{-Tg^2 x} \frac{Tg\, x}{Cos^2 2x} \frac{dx}{x} = \frac{1}{2}\sqrt{\pi}$ (VIII, 414).

4) $\int \frac{e^{s\, Cos\, rx} Sin\,(s\, Sin\, rx)}{Sin\, rx} \frac{dx}{q^2 + x^2} = \frac{\pi}{q(e^{qr} - e^{-qr})} (e^s - e^{s e^{-qr}})$ (H, 154).

5) $\int \frac{1 - e^{s\, Cos\, rx} Cos\,(s\, Sin\, rx)}{Sin\, rx} \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{e^{qr} - e^{-qr}} (e^s - e^{s e^{-qr}})$ (H, 154).

6) $\int e^{s\, Cos\, rx} \frac{Sin\,(s\, Sin\, rx + rx)}{Sin\, rx} \frac{dx}{q^2 + x^2} = \frac{\pi}{q(e^{qr} - e^{-qr})} (e^s - e^{s e^{-qr} - qr})$ (H, 156).

7) $\int e^{s\, Cos\, rx} \frac{Cos\,(s\, Sin\, rx + rx)}{Sin\, rx} \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{e^{qr} - e^{-qr}} (e^s - e^{s e^{-qr} - qr})$ (H, 155).

8) $\int e^{t\, Cos\, 2rx} Cos^{s-1} rx \frac{Sin\,(srx + t\, Sin\, 2rx)}{Sin\, rx} \frac{dx}{q^2 + x^2} = \frac{2^{1-s}\pi}{(e^{2qr} - e^{-2qr})q} \{2^s e^t -$

$- (1 + e^{-2qr})^s e^{t e^{-2qr}}\}$ (H, 158).

9) $\int \frac{1 - e^{t \, Cos \, 2rx} \, Cos^s rx \, . \, Cos(srx + t \, Sin \, 2rx)}{Sin \, 2rx} \frac{x \, dx}{q^2 + x^2} = \frac{2^{-s} \pi}{e^{2qr} - e^{-2qr}} \{2^s e^t - (1 + e^{-2qr})^s e^{t e^{-2qr}}\}$ (H, 158).

10) $\int e^{t \, Cos \, 2rx} \, Cos^{s-1} rx \frac{Sin\{(s+2)rx + t \, Sin \, 2rx\}}{Sin \, rx} \frac{dx}{q^2 + x^2} = \frac{2^{1-s} \pi}{(e^{2qr} - e^{-2qr}) q} \{2^s e^t - (1 + e^{-2qr})^s e^{t e^{-2qr} - 2qr}\}$ (H, 164).

11) $\int e^{t \, Cos \, 2rx} \, Cos^{s-1} rx \frac{Cos\{(s+2)rx + t \, Sin \, 2rx\}}{Sin \, rx} \frac{x \, dx}{q^2 + x^2} = \frac{2^{1-s} \pi}{e^{2qr} + e^{-2qr}} \{2^s e^t - (1 + e^{-2qr})^s e^{t e^{-2qr} - 2qr}\}$ (H, 164).

12) $\int e^{s \, Cos \, rx} \frac{Sin(s \, Sin \, rx)}{Sin \, rx} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q \, Sin \, qr} \{e^s - e^{s \, Cos \, qr} \, Cos(s \, Sin \, qr)\}$ (H, 154).

13) $\int \frac{1 - e^{s \, Cos \, rx} \, Cos(s \, Sin \, rx)}{Sin \, rx} \frac{x \, dx}{q^2 - x^2} = -\frac{\pi}{2} e^{s \, Cos \, qr} \frac{Sin(s \, Sin \, qr)}{Sin \, qr}$ (H, 154).

14) $\int e^{s \, Cos \, rx} \frac{Sin(s \, Sin \, rx + rx)}{Sin \, rx} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q \, Sin \, qr} \{e^s - e^{s \, Cos \, qr} \, Cos(s \, Sin \, qr + qr)\}$ (H, 156).

15) $\int e^{s \, Cos \, rx} \frac{Cos(s \, Sin \, rx + rx)}{Sin \, rx} \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2} e^{s \, Cos \, qr} \frac{Sin(s \, Sin \, qr + qr)}{Sin \, qr}$ (H, 156).

16) $\int e^{t \, Cos \, 2rx} \, Cos^{s-1} rx \frac{Sin(srx + t \, Sin \, 2rx)}{Sin \, rx} \frac{dx}{q^2 - x^2} = \frac{\pi}{q \, Sin \, 2qr} \{e^t - e^{t \, Cos \, 2qr} \, Cos^s qr \, . \, Cos(sqr + t \, Sin \, 2qr)\}$ (H, 159).

17) $\int \frac{1 - e^{t \, Cos \, 2rx} \, Cos^s rx \, . \, Cos(srx + t \, Sin \, 2rx)}{Sin \, 2rx} \frac{x \, dx}{q^2 - x^2} = -\frac{\pi}{4} e^{t \, Cos \, 2qr} \, Cos^{s-1} qr \frac{Sin(sqr + t \, Sin \, 2qr)}{Sin \, qr}$ (H, 159).

18) $\int e^{t \, Cos \, 2rx} \, Cos^{s-1} rx \frac{Sin\{(s+2)rx + t \, Sin \, 2rx\}}{Sin \, rx} \frac{dx}{q^2 - x^2} = \frac{\pi}{q \, Sin \, 2qr} \{e^t - e^{t \, Cos \, qr} \, Cos^s qr \, . \, Cos\{(s+2)qr + t \, Sin \, 2qr\}\}$ (H, 166).

19) $\int e^{t \, Cos \, 2rx} \, Cos^{s-1} rx \frac{Cos\{(s+2)rx + t \, Sin \, 2rx\}}{Sin \, rx} \frac{x \, dx}{q^2 - x^2} = \frac{\pi}{2} e^{t \, Cos \, qr} \, Cos^{s-1} qr \frac{Sin\{(s+2)qr + t \, Sin \, 2qr\}}{Sin \, qr}$ (H, 166).

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1) $\int e^{s\,Cos\,rx}\frac{Sin(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2(1-pe^{-qr})(1-pe^{qr})}(e^{s\,e^{-qr}}-e^{ps})$ (H, 154).

2) $\int e^{s\,Cos\,rx}\frac{Cos(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\Big\{e^{s\,e^{-qr}}-$

$-\frac{p}{1-p^2}(e^{qr}-e^{-qr})e^{ps}\Big\}$ (H, 154).

3) $\int e^{s\,Cos\,rx}\frac{Sin(s\,Sin\,rx+rx)}{1-2p\,Cos\,rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2(1-pe^{-qr})(1-pe^{qr})}(e^{s\,e^{-qr}-qr}-pe^{ps})$ (H, 156).

4) $\int e^{s\,Cos\,rx}\frac{Cos(s\,Sin\,rx+rx)}{1-2p\,Cos\,rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\Big\{e^{s\,e^{-qr}-qr}-$

$-\frac{p^2}{1-p^2}(e^{qr}-e^{-qr})e^{ps}\Big\}$ (H, 156).

5) $\int e^{t\,Cos\,2rx}\,Cos^s\,rx\frac{Sin(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}(1-pe^{-2qr})(1-pe^{2qr})}$

$\{(1+e^{-2qr})^s\,e^{t\,e^{-2qr}}-(1+p)^s\,e^{pt}\}$ (H, 159).

6) $\int e^{t\,Cos\,2rx}\,Cos^s\,rx\frac{Cos(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q(1-pe^{-2qr})(1-pe^{2qr})}$

$\Big\{(1+e^{-2qr})^s\,e^{t\,e^{-2qr}}-\frac{p}{1-p}(e^{2qr}-e^{-2qr})(1+p)^{s-1}e^{pt}\Big\}$ (H, 158).

7) $\int e^{t\,Cos\,2rx}\,Sin^s\,rx\,.\,Cos^u\,rx\frac{Sin\{\frac{1}{2}s\pi-(s+u)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{s+u+1}(1-pe^{-2qr})(1-pe^{2qr})}\{(1+p)^u(1-p)^s\,e^{pt}-$

$-(1+e^{-2qr})^u(1-e^{-2qr})^s\,e^{t\,e^{-2qr}}\}$ (H, 160).

8) $\int e^{t\,Cos\,2rx}\,Sin^s\,rx\,.\,Cos^u\,rx\frac{Cos\{\frac{1}{2}s\pi-(s+u)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{s+u+1}q(1-pe^{-2qr})(1-pe^{2qr})}\{(1+e^{-2qr})^u(1-e^{-2qr})^s\,e^{t\,e^{-2qr}}-$

$-p(1+p)^{u-1}(1-p)^{s-1}\,e^{pt}(e^{2qr}-e^{-2qr})\}$ (H, 160).

9) $\int e^{t\,Cos\,2rx}\,Cos^s\,rx\frac{Sin\{(s+2)rx+t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+1}(1-pe^{-2qr})(1-pe^{2qr})}$

$\{(1+e^{-2qr})^s\,e^{t\,e^{-qr}-2qr}-p(1+p)^s\,e^{pt}\}$ (H, 164).

10) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Cos\{(s+2)rx+t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+1}q(1-pe^{-2qr})(1-pe^{2qr})}$
$\left\{(1+e^{-2qr})^s e^{te^{-qr}-2qr}-\frac{2p^2}{1-p}(e^{2qr}-e^{-2qr})(1+p)^{s-1}e^{pt}\right\}$ (H, 164).

11) $\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Sin\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{x\,dx}{q^2+x^2}=$
$=\frac{\pi}{2^{s+u+1}(1-pe^{-2qr})(1-pe^{2qr})}\{(1+e^{-2qr})^u(1-e^{-2qr})^s e^{te^{-2qr}-2qr}-$
$-p(1+p)^u(1-p)^s e^{pt}\}$ (H, 167).

12) $\int e^{t\,Cos\,2rx}\,Sin^s rx.\,Cos^u rx\,\frac{Cos\{\frac{1}{2}s\pi-(s+u+2)rx-t\,Sin\,2rx\}}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{q^2+x^2}=$
$=\frac{\pi}{2^{s+u+1}q(1-pe^{-2qr})(1-pe^{2qr})}\{(1+e^{-2qr})^u(1-e^{-2qr})^s e^{te^{-2qr}-2qr}-$
$-p^2(1+p)^{u-1}(1-p)^{s-1}e^{pt}(e^{2qr}-e^{-2qr})\}$ (H, 167).

13) $\int e^{t\,Cos\,ux}\,Cos^s rx\,\frac{Sin(srx+t\,Sin\,ux)-p\,Sin(srx+t\,Sin\,ux-nx)}{1-2p\,Cos\,nx+p^2}\,\frac{x\,dx}{q^2+x^2}=$
$=\frac{\pi}{2}\,\frac{e^{te^{-qu}}}{1-pe^{-nq}}\left(\frac{1+e^{-2qtu}}{2}\right)^s-\frac{\pi}{2^{s+1}}$

14) $\int e^{t\,Cos\,ux}\,Cos^s rx\,\frac{Cos(srx+t\,Sin\,ux)-p\,Cos(srx+t\,Sin\,ux-nx)}{1-2p\,Cos\,nx+p^2}\,\frac{dx}{q^2+x^2}=$
$=\frac{\pi}{2q}\,\frac{e^{te^{-qu}}}{1-pe^{-nq}}\left(\frac{1+e^{-2qtu}}{2}\right)^s$

Sur 13) et 14) voyez Malmsten, Nova Acta Upsal. 12, 171.

F. Alg. rat. fract. d' autre forme;
Exponentielle; TABLE 393. Lim. 0 et ∞.
Circ. Dir. au dén. trinôme; $[p^2<1]$.

1) $\int e^{s\,Cos\,rx}\,\frac{Sin(s\,Sin\,rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2(1-p)^2}(e^s-e^{ps})$ (H, 154).

2) $\int e^{s\,Cos\,rx}\,\frac{Sin(srx+t\,Sin\,2rx)}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2(1-p)^2}(e^s-pe^{ps})$ (H, 154).

3) $\int e^{t\,Cos\,2rx}\,Cos^s rx\,\frac{Sin(srx+t\,Sin\,2rx)}{1-2p\,Cos\,2rx+p^2}\,\frac{dx}{x}=\frac{\pi}{2^{s+1}(1-p)^2}\{2^s e^t-(1+p)^s e^{pt}\}$ (H, 158).

4) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Sin}^s rx \,.\, \operatorname{Cos}^q rx \frac{\operatorname{Sin}\left\{\frac{1}{2}s\pi - (q+s)rx - t \operatorname{Sin} 2rx\right\}}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{dx}{x} = \frac{\pi}{2^{q+s+1}} (1+p)^q (1-p)^{s-2} e^{pt}$$ (H, 159).

5) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Cos}^s rx \frac{\operatorname{Sin}\{(s+2) \operatorname{Sin} rx + t \operatorname{Sin} 2rx\}}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{dx}{x} = \frac{\pi}{2^{s+1}(1-p)^2} \{2^s e^t - p(1+p)^s e^{tu}\}$$ (H, 163).

6) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Sin}^s rx \,.\, \operatorname{Cos}^q rx \frac{\operatorname{Sin}\left\{\frac{1}{2}s\pi - (q+s+2)rx - t \operatorname{Sin} 2rx\right\}}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{dx}{x} = \frac{-p\pi}{2^{q+s+1}} (1+p)^q (1-p)^{s-2} e^{pt}$$ (H, 167).

7) $$\int e^{s \operatorname{Cos} rx} \frac{\operatorname{Sin}(s \operatorname{Sin} rx)}{1 - 2p \operatorname{Cos} rx + p^2} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \operatorname{Cos} qr + p^2)} \{e^{ps} - e^{s \operatorname{Cos} qr} \operatorname{Cos}(s \operatorname{Sin} qr)\}$$ (H, 154).

8) $$\int e^{s \operatorname{Cos} rx} \frac{\operatorname{Cos}(s \operatorname{Sin} rx)}{1 - 2p \operatorname{Cos} rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1 - 2p \operatorname{Cos} qr + p^2)} \left\{\frac{2p}{1-p^2} e^{ps} \operatorname{Sin} qr + e^{s \operatorname{Cos} qr} \operatorname{Sin}(s \operatorname{Sin} qr)\right\}$$ (H, 154).

9) $$\int e^{s \operatorname{Cos} rx} \frac{\operatorname{Sin}(s \operatorname{Sin} rx + rx)}{1 - 2p \operatorname{Cos} rx + p^2} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \operatorname{Cos} qr + p^2)} \{p e^{ps} - e^{s \operatorname{Cos} qr} \operatorname{Cos}(s \operatorname{Sin} qr + qr)\}$$ (H, 156).

10) $$\int e^{s \operatorname{Cos} rx} \frac{\operatorname{Cos}(s \operatorname{Sin} rx + rx)}{1 - 2p \operatorname{Cos} rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1 - 2p \operatorname{Cos} qr + p^2)} \left\{\frac{2p^2}{1-p^2} e^{ps} \operatorname{Sin} qr + e^{s \operatorname{Cos} qr} \operatorname{Sin}(s \operatorname{Sin} qr + qr)\right\}$$ (H, 156).

11) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Cos}^s rx \frac{\operatorname{Sin}(srx + t \operatorname{Sin} 2rx)}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2^{s+1}(1 - 2p \operatorname{Cos} 2qr + p^2)} \{(1+p)^s e^{pt} - 2^s e^{t \operatorname{Cos} 2qr} \operatorname{Cos}^s qr \,.\, \operatorname{Cos}(sqr + t \operatorname{Sin} 2qr)\}$$ (H, 159).

12) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Cos}^s rx \frac{\operatorname{Cos}(srx + t \operatorname{Sin} 2rx)}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2^{s+1} q(1 - 2p \operatorname{Cos} 2qr + p^2)} \left\{\frac{2p}{1-p}(1+p)^{s-1} e^{pt} \operatorname{Sin} 2qr + 2^s e^{t \operatorname{Cos} 2qr} \operatorname{Cos}^s qr \,.\, \operatorname{Sin}(sqr + t \operatorname{Sin} 2qr)\right\}$$ (H, 159).

13) $$\int e^{t \operatorname{Cos} 2rx} \operatorname{Sin}^s rx \,.\, \operatorname{Cos}^u rx \frac{\operatorname{Sin}\left\{\frac{1}{2}s\pi - (s+u)rx - t \operatorname{Sin} 2rx\right\}}{1 - 2p \operatorname{Cos} 2rx + p^2} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2(1 - 2p \operatorname{Cos} 2qr + p^2)} \left\{e^{t \operatorname{Cos} 2qr} \operatorname{Sin}^s qr \,.\, \operatorname{Cos}^u qr \,.\, \operatorname{Cos}\left\{\frac{1}{2}s\pi - (s+u)qr - t \operatorname{Sin} 2qr\right\} - 2^{-u-s}(1+p)^u (1-p)^s e^{pt}\right\}$$ (H, 160).

14) $\int e^{t \, Cos\, 2rx} Sin^s rx . Cos^u rx \frac{Cos\{\frac{1}{2}s\pi - (s+u)rx - t\, Sin\, 2rx\}}{1 - 2p\, Cos\, 2rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q(1 - 2p Cos 2qr + p^2)}$

$\left\{\frac{p}{2^{s+u-1}}(1+p)^{u-1}(1-p)^{s-1} e^{pt} Sin\, 2qr + e^{t\, Cos\, 2qr} Sin^s qr . Cos^u qr . Sin\left\{\frac{1}{2}s\pi - \right.\right.$

$\left.\left. - (s+u)qr - t\, Sin\, 2qr\right\}\right\}$ (H, 161).

15) $\int e^{t\, Cos\, 2rx} Cos^s rx \frac{Sin\{(s+2)rx + t\, Sin\, 2rx\}}{1 - 2p\, Cos\, 2rx + p^2} \frac{x\,dx}{q^2 - x^2} = \frac{\pi}{2^{s+1}(1 - 2p\, Cos\, 2qr + p^2)}$

$\left\{(1+p)^s p e^{pt} - 2^s e^{t\, Cos\, 2qr} Cos^s qr . Cos\{(s+2)qr + t\, Sin\, 2qr\}\right\}$ (H, 166).

16) $\int e^{t\, Cos\, 2rx} Cos^s rx \frac{Cos\{(s+2)rx + t\, Sin\, 2rx\}}{1 - 2p\, Cos\, 2rx + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2^{s+1}q(1 - 2p\, Cos\, 2qr + p^2)}$

$\left\{\frac{p^2}{1-p}(1+p)^{s-1} e^{pt} Sin\, 2qr + 2^{s-2} e^{t\, Cos\, 2qr} Cos^s qr . Sin\{(s+2)qr + t\, Sin\, 2qr\}\right\}$ (H, 166).

17) $\int e^{t\, Cos\, 2rx} Sin^s rx . Cos^u rx \frac{Sin\{\frac{1}{2}s\pi - (s+u+2)rx - t\, Sin\, 2rx\}}{1 - 2p\, Cos\, 2rx + p^2} \frac{x\,dx}{q^2 - x^2} =$

$= \frac{\pi}{2(1 - 2p\, Cos\, 2qr + p^2)} \left\{e^{t\, Cos\, 2qr} Sin^s qr . Cos^u qr . Cos\left\{\frac{1}{2}s\pi - (s+u+2)qr - t\, Sin\, 2qr\right\} - \right.$

$\left. - \frac{p}{2^{s+u}}(1+p)^u (1-p)^s e^{pu}\right\}$ (H, 170).

18) $\int e^{t\, Cos\, 2rx} Sin^s rx . Cos^u rx \frac{Cos\{\frac{1}{2}s\pi - (s+u+2)rx - t\, Sin\, 2rx\}}{1 - 2p\, Cos\, 2rx + p^2} \frac{dx}{q^2 - x^2} =$

$= \frac{\pi}{2q(1 - 2p\, Cos\, 2qr + p^2)} \left\{\frac{p^2}{2^{s+u-1}}(1+p)^{u-1}(1-p)^{s-1} e^{pt} Sin\, 2qr + \right.$

$\left. + e^{t\, Cos\, 2qr} Sin^s qr . Cos^u qr . Sin\left\{\frac{1}{2}s\pi - (s+u+2)qr - t\, Sin\, 2qr\right\}\right\}$

(H, 170).

F. Algébr. irrat. ent.;
Exponentielle; TABLE 394. Lim. 0 et ∞.
Circulaire Directe.

1) $\int e^{-qx} Sin\, px . dx \sqrt{x} = \frac{1}{4}\sqrt{\left\{-q^3 + 3qp^2 + \sqrt{p^2+q^2}^{\,3}\right\}} . \sqrt{\frac{2\pi}{(p^2+q^2)^3}}$ (IV, 513).

2) $\int e^{-qx} Sin\, px . x\,dx \sqrt{x} = \frac{3}{8}\sqrt{\left\{-q^5 + 10q^3p^2 - 5qp^4 + \sqrt{p^2+q^2}^{\,5}\right\}} . \sqrt{\frac{2\pi}{(p^2+q^2)^5}}$

(IV, 513).

F. Algébr. irrat. ent.;
Exponentielle;
Circulaire Directe.

TABLE 394, suite.

Lim. 0 et ∞.

3) $\int e^{-qx}\, Sin\, px\,.\,x^2\,dx\,\sqrt{x} = \frac{15}{16}\sqrt{\{-q^7+21q^5p^2-35q^3p^4+7qp^6+\sqrt{p^2+q^2}^{\,7}\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^7}}$ (IV, 513).

4) $\int e^{-qx}\, Cos\, px\,.\,dx\,\sqrt{x} = \frac{1}{4}\sqrt{\{q^3-3qp^2+\sqrt{p^2+q^2}^{\,3}\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^3}}$ (IV, 513).

5) $\int e^{-qx}\, Cos\, px\,.\,x\,dx\,\sqrt{x} = \frac{3}{8}\sqrt{\{q^5-10q^3p^2+5qp^4+\sqrt{p^2+q^2}^{\,5}\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^5}}$ (IV, 513).

6) $\int e^{-qx}\, Cos\, px\,.\,x^2\,dx\,\sqrt{x} = \frac{15}{16}\sqrt{\{q^7-21q^5p^2+35q^3p^4-7qp^6+\sqrt{p^2+q^2}^{\,7}\}}\,.\,\sqrt{\frac{2\pi}{(p^2+q^2)^7}}$ (IV, 513).

F. Algébr. irrat. fract.;
Exponentielle;
Circulaire Directe.

TABLE 395.

Lim. 0 et ∞.

1) $\int e^{-qx}\, Sin\, px\,\frac{dx}{\sqrt{x}} = \sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}-q}{p^2+q^2}\right\}}$ (VIII, 529).

2) $\int e^{-qx}\, Cos\, px\,\frac{dx}{\sqrt{x}} = \sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}+q}{p^2+q^2}\right\}}$ (VIII, 529).

3) $\int e^{-qx}\, Cos(2\sqrt{px})\,\frac{dx}{\sqrt{x}} = e^{-\frac{p}{q}}\sqrt{\frac{\pi}{q}}$ (VIII, 514).

4) $\int e^{-p^2x-\frac{q^2}{x}}\, Sin\, rx\,\frac{dx}{\sqrt{x}} = e^{-2q\lambda}(\lambda\, Sin\, 2q\mu+\mu\, Cos\, 2q\mu)\sqrt{\frac{\pi}{r^2+p^4}}$ (VIII, 451).

5) $\int e^{-p^2x-\frac{q^2}{x}}\, Cos\, rx\,\frac{dx}{\sqrt{x}} = e^{-2q\lambda}(\lambda\, Cos\, 2q\mu-\mu\, Sin\, 2q\mu)\sqrt{\frac{\pi}{r^2+p^4}}$ (VIII, 451).

Où $2\lambda = \sqrt{\{\sqrt{r^2+p^4}+p^2\}}+\sqrt{\{\sqrt{r^2+p^4}-p^2\}}$,

$2\mu = \sqrt{\{\sqrt{r^2+p^4}+p^2\}}-\sqrt{\{\sqrt{r^2+p^4}-p^2\}}$

6) $\int \frac{Sin\, px}{e^x+e^{-x}}\,\frac{dx}{\sqrt{x}} = \sum_0^\infty (-1)^n\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+(2n+1)^2}-2n-1}{p^2+(2n+1)^2}\right\}}$ (VIII, 487).

7) $\int \frac{Sin\, px}{e^x+1+e^{-x}}\,\frac{dx}{\sqrt{x}} = Cosec\,\frac{\pi}{3}\,.\,\sum_1^\infty (-1)^{n-1}\, Sin\,\frac{n\pi}{3}\,.\,\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+n^2}-n}{p^2+n^2}\right\}}$ (VIII, 487).

8) $\int \frac{Cos\, px}{e^x+e^{-x}}\,\frac{dx}{\sqrt{x}} = \sum_0^\infty (-1)^n\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+(2n+1)^2}+2n+1}{p^2+(2n+1)^2}\right\}}$ (VIII, 487).

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F. Algébr. irrat. fract.;
Exponentielle;
Circulaire Directe.

TABLE 395, suite.

Lim. 0 et ∞.

9) $\int \frac{Cos\, p\, x}{e^x+1+e^{-x}} \frac{dx}{\sqrt{x}} = Cosec \frac{\pi}{3} . \sum_1^\infty (-1)^{n-1} Sin \frac{n\pi}{3} . \sqrt{\left\{\frac{\pi}{2} \frac{\sqrt{p^2+n^2}+n}{p^2+n^2}\right\}}$ (VIII, 487).

10) $\int e^{-qx} Sin\, q\, x \frac{dx}{x\sqrt{x}} = -\sqrt{\{(\sqrt{2}-1) 2 q \pi\}}$ (IV, 515).

11) $\int e^{-qx} Sin\, p\, x \frac{dx}{x\sqrt{x}} = -\sqrt{[2\pi\{-q+\sqrt{p^2+q^2}\}]}$ (IV, 515).

12) $\int e^{-q\sqrt{x}} \frac{\{p+\sqrt{x}\} Cos(q\sqrt{x}) - Sin(q\sqrt{x}) . \sqrt{x}}{2x+2p\sqrt{x}+p^2} dx = 0$ (IV, 516).

13) $\int e^{-q\sqrt{x}} \frac{(p+\sqrt{x}) Cos(q\sqrt{x}) - Sin(q\sqrt{x}) . \sqrt{x}}{2x+2p\sqrt{x}+p^2} \frac{dx}{r^2-x^2} = \frac{(p+\sqrt{r}) Sin(q\sqrt{r}) + Cos(q\sqrt{r}) . \sqrt{r}}{2r+2p\sqrt{r}+p^2}$

$\frac{\pi e^{-q\sqrt{r}}}{2r}$ (IV, 516).

F. Algébrique;
Exponentielle;
Circulaire Directe.

TABLE 396.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-px} Sin\, x . x\, dx = \frac{1}{(1+p^2)^2} \left[\left\{1-p^2-\frac{1}{2}p\pi(1+p^2)\right\} e^{-\frac{1}{2}p\pi} + 2p\right]$ (VIII, 566).

2) $\int e^{-px} Cos\, x . x\, dx = \frac{1}{(1+p^2)^2} \left[p^2-1+\left\{\frac{\pi}{2}(1+p^2)+2p\right\} e^{-\frac{1}{2}p\pi}\right]$ (VIII, 566).

3) $\int e^{-q\, Tg\, x} \frac{x\, dx}{Cos^2 x} = \frac{1}{q} \left[Ci(q) . Sin\, q + Cos\, q . \left\{\frac{\pi}{2} - Si(q)\right\}\right]$ V. T. 271, N. 2.

4) $\int e^{-q\, Tg\, x} \frac{Sin\, x + Cos\, x}{Cos^3 x} x\, dx = Sin\, q . \left\{\frac{\pi}{2} - Si(q)\right\} - Ci(q) . Cos\, q$ V. T. 271, N. 3.

5) $\int e^{-Tg^2 x} Sin\, 4x \frac{x\, dx}{Cos^8 x} = -\frac{3}{2}\sqrt{\pi}$ V. T. 272, N. 9.

6) $\int e^{-Tg^2 x} Sin^3 2x \frac{x\, dx}{Cos^8 x} = 2\sqrt{\pi}$ V. T. 272, N. 9.

7) $\int e^{-q\, Tg^2 x} \frac{q - Cos^2 x}{Cos^4 x . Cot\, x} x\, dx = \frac{1}{4}\sqrt{\frac{\pi}{q}}$ V. T. 272, N. 9.

8) $\int e^{-q\, Tg^2 x} \frac{q - 2\, Cos^2 x}{Cos^6 x . Cot\, x} x\, dx = \frac{1+2q}{8} \sqrt{\frac{\pi}{q}}$ V. T. 272, N. 11.

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F. Algébrique; Exponentielle; Circulaire Directe.	TABLE 396, suite.	Lim. 0 et $\frac{\pi}{2}$.

9) $\int \frac{e^{\frac{1}{4}\pi Tg\,x} - e^{-\frac{1}{4}\pi Tg\,x}}{(e^{\frac{1}{4}\pi Tg\,x} + e^{-\frac{1}{4}\pi Tg\,x})^2} \frac{x\,dx}{Cos^2 x} = \frac{\sqrt{2}}{\pi}\left\{\pi + l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 274, N. 1.

10) $\int \frac{e^{\frac{1}{2}\pi Tg\,x} - e^{-\frac{1}{2}\pi Tg\,x}}{(e^{\frac{1}{2}\pi Tg\,x} + e^{-\frac{1}{2}\pi Tg\,x})^2} \frac{x\,dx}{Cos^2 x} = \frac{1}{\pi}\,l2$ V. T. 274, N. 2.

11) $\int \frac{e^{\pi Tg\,x} - e^{-\pi Tg\,x}}{(e^{\pi Tg\,x} + e^{-\pi Tg\,x})^2} \frac{x\,dx}{Cos^2 x} = \frac{4-\pi}{4\pi}$ V. T. 274, N. 3.

F. Algébrique; Exponentielle; Circulaire Directe.	TABLE 397.	Lim. diverses.

1) $\int_0^1 \left(Cos^p x - \frac{e^{qx}+e^{-qx}}{2}\right)\frac{dx}{x} = l\left(\frac{q}{p}\right) + Ci(p) - \frac{1}{2}Ei(q) - \frac{1}{2}Ei(-q)$ (IV, 516*).

2) $\int_{-1}^1 \frac{e^{p\sqrt{(1-x^2)}} + e^{-p\sqrt{(1-x^2)}}}{s-tx} \frac{Sin\,px}{\sqrt{1-x^2}}dx = \frac{\pi}{2\sqrt{s^2-t^2}} Sin\left\{p\frac{s-\sqrt{s^2-t^2}}{2t}\right\}$ $[t<s]$ (VIII, 549).

3) $\int_{-1}^1 \frac{e^{p\sqrt{(1-x^2)}} + e^{-p\sqrt{(1-x^2)}}}{s-tx} \frac{Cos\,px}{\sqrt{1-x^2}}dx = \frac{\pi}{2\sqrt{s^2-t^2}} Cos\left\{p\frac{s-\sqrt{s^2-t^2}}{2t}\right\}$ $[t<s]$ (VIII, 549).

4) $\int_{-\infty}^{\infty} e^{-px^2+2qx\,Cos\lambda}\,Sin(2qx\,Sin\lambda).x\,dx = \frac{q\pi}{p}\,e^{\frac{q^2}{p}Cos\,2\lambda}\,Sin\left(\lambda+\frac{q^2}{p}Sin\,2\lambda\right).\sqrt{\frac{\pi}{p}}$ (IV, 516).

5) $\int_{-\infty}^{\infty} e^{-px^2+2qx\,Cos\lambda}\,Cos(2qx\,Sin\lambda).x\,dx = \frac{q\pi}{p}\,e^{\frac{q^2}{p}Cos\,2\lambda}\,Cos\left(\lambda+\frac{q^2}{p}Sin\,2\lambda\right).\sqrt{\frac{\pi}{p}}$ (IV, 516).

6) $\int_{-\infty}^{\infty} e^{pxi}\,Cos\,qx\,\frac{dx}{r^2+x^2} = \frac{\pi}{2r}e^{-qr}(e^{pr}+e^{-pr})$ $[q>p]$ Lobatto, N. V. Amst. 6, 1.

7) $\int_{-\frac{\pi}{2}}^{\frac{\pi}{2}} e^{(q+1)xi}\,Cos^{q-1}x.x\,dx = \frac{\pi i}{2^q q}$ (IV, 516).

8) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{(q+2a)xi}\,Cos^q x.x\,dx = \frac{\pi}{i}\,\frac{Cos\,a\pi}{2^{q+1}}\,\frac{1^{a-1/1}}{q^{a-1/1}}$ (VIII, 430).

9) $\int_{\frac{\pi}{2}}^{\infty} e^{-px}\,Sin\,x.x\,dx = e^{-\frac{1}{2}p\pi}\frac{(1+p^2)\frac{1}{2}p\pi+p^2-1}{(1+p^2)^2}$ (VIII, 566).

10) $\int_{\frac{\pi}{2}}^{\infty} e^{-px}\,Cos\,x.x\,dx = -e^{-\frac{1}{2}p\pi}\frac{\frac{1}{2}\pi(1+p^2)+2p}{(1+p^2)^2}$ (VIII, 566).

F. Algébrique; Exponentielle; Circulaire Directe. | Intégr. Lim. [Lim. $k=\infty$]. | TABLE 398. | Lim. diverses.

1) $\int_0^\infty e^{-\frac{x}{k}} Sin\, qx . x^{p-1}\, dx = q^{-p}\,\Gamma(p)\, Sin \frac{1}{2} p\pi$ (IV, 498).

2) $\int_0^\infty e^{-\frac{x}{k}} Cos\, qx . x^{p-1}\, dx = q^{-p}\,\Gamma(p)\, Cos \frac{1}{2} p\pi$ (IV, 498).

3) $\int_0^\infty \frac{e^{-kx}\, Sin\, px}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

4) $\int_0^\infty \frac{e^{-kx}\, Cos\, px}{e^x + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

5) $\int_0^\infty \frac{e^{-kx}\, Sin\, px}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

6) $\int_0^\infty \frac{e^{-kx}\, Cos\, px}{e^x + 1 + e^{-x}} \frac{dx}{\sqrt{x}} = 0$ (VIII, 318).

7) $\int_0^a \frac{e^{px} + e^{-px}}{e^{rx} - e^{-rx}} \frac{Sin\, kx}{q^2 + x^2}\, dx = 0$ $[0 < a < \infty]$ (VIII, 378).

8) $\int_0^a \frac{e^{px} - e^{-px}}{e^{rx} - e^{-rx}} \frac{Cos\, kx}{q^2 + x^2}\, dx = 0$ $[0 < a < \infty]$ (VIII, 378).

F. Algébrique; Exponentielle; Circulaire Inverse. | TABLE 399. | Lim. 0 et ∞.

1) $\int e^{-px} Arctg \frac{x}{q} . x\, dx = \frac{1}{p^2} \Big[Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq - pq \Big\{ Ci(pq) . Cos\, pq +$

$+ \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \Big\} \Big]$ (VIII, 598).

2) $\int e^{-px} Arctg \frac{x}{q} . x^{2a}\, dx = \frac{1}{p^{2a+1}} \Big[\Big\{ Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq \Big\}\, 1^{2a/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} -$

$- pq \Big\{ Ci(pq) . Cos\, pq + \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \Big\}\, 1^{2a/1} \sum_0^{a-1} \frac{(-p^2q^2)^n}{1^{2n+1/1}} + 3^{2a-2/1}\, pq \sum_1^a$

$\Big\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \Big\} + 4^{2a-3/1}\, pq \sum_1^a \Big\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m-1/1} (-p^2q^2)^m \Big\} \Big]$

(IV, 517).

3) $\int e^{-px} Arctg \frac{x}{q} . x^{2a+1}\, dx = \frac{1}{p^{2a+2}} \Big[\Big\{ Ci(pq) . Sin\, pq - \left(Si(pq) - \frac{\pi}{2}\right) Cos\, pq \Big\}\, 1^{2a+1/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n/1}} -$

$- pq \Big\{ Ci(pq) . Cos\, pq + \left(Si(pq) - \frac{\pi}{2}\right) Sin\, pq \Big\}\, 1^{2a+1/1} \sum_0^a \frac{(-p^2q^2)^n}{1^{2n+1/1}} + 3^{2a-1/1}\, pq \sum_1^{a+1}$

$\Big\{ \frac{1}{1^{2n+1/1}} \sum_0^{n-1} 1^{2n-2m+1/1} (-p^2q^2)^m \Big\} + 4^{2a-2/1}\, pq \sum_1^a \Big\{ \frac{1}{1^{2n/1}} \sum_0^{n-1} 1^{2n-2m/1} (-p^2q^2)^m \Big\} \Big]$

(IV, 517).

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4) $\int e^{-px}\, Arccot\frac{x}{q}\,.\,x\,dx = \frac{1}{p^2}\left[\pi\, Sin^2\frac{1}{2}pq - Ci(pq).Sin pq + Si(pq).Cos pq + pq\left\{Ci(pq).Cos pq + \right.\right.$

$\left.\left. + \left(Si(pq) - \frac{\pi}{2}\right) Sin pq\right\}\right]$ (VIII, 598).

5) $\int Arctg\frac{x}{q}\,\frac{(2\pi x - 1)e^{2\pi x} + 1}{(e^{2\pi x} - 1)^2}\,dx = -\frac{1}{4} + \frac{1}{2}q\,l q - \frac{1}{2}q Z'(q)$ V. T. 97, N. 20.

6) $\int Arctg\, x\,\frac{(\pi x - 1)e^{\pi x} + (\pi x + 1)e^{-\pi x}}{(e^{\pi x} - e^{-\pi x})^2}\,dx = \frac{1}{2}\left(l2 - \frac{1}{2}\right)$ V. T. 97, N. 7.

7) $\int Arctg\, x\,\frac{e^{-2\pi x} + 2\pi x - 1}{(e^{\pi x} - e^{-\pi x})^2}\,dx = \frac{1}{2}A - \frac{1}{4}$ V. T. 97, N. 14.

8) $\int Arctg\, x\,\frac{e^{-2qx} + 2qx - 1}{(e^{qx} - e^{-qx})^2}\,dx = \frac{1}{2}\,l\frac{q}{\pi} + \frac{\pi}{4q} - \frac{1}{2}Z'\left(\frac{\pi + q}{\pi}\right)$ V. T. 97, N. 15.

9) $\int Arctg\, x\,\frac{\pi x(e^{\frac{1}{4}\pi x} + e^{-\frac{1}{4}\pi x}) - 4(e^{\frac{1}{4}\pi x} - e^{-\frac{1}{4}\pi x})}{(e^{\frac{1}{4}\pi x} - e^{-\frac{1}{4}\pi x})^2}\,dx = \pi\sqrt{2} - 4 + \sqrt{2}\,.\,l\frac{\sqrt{2}+1}{\sqrt{2}-1}$
V. T. 97, N. 9.

10) $\int Arctg\, x\,\frac{(e^{\frac{1}{2}\pi x} + e^{-\frac{1}{2}\pi x})\pi x - 2(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})}{(e^{\frac{1}{2}\pi x} - e^{-\frac{1}{2}\pi x})^2}\,dx = \frac{1}{2}\pi - 1$ V. T. 97, N. 8.

11) $\int Arctg\left(\frac{e^{qx} - e^{px}}{1 + e^{(p+q)x}}\right)\frac{dx}{x} = \frac{\pi}{4}\,l\frac{q}{p}$ (VIII, 279).

12) $\int\left(\frac{Arctg\, qx}{1 - e^{-qrx}} - \frac{Arctg\, px}{1 - e^{-prx}}\right)\frac{dx}{x} = \left(\frac{\pi}{2} - \frac{1}{r}\right)l\frac{q}{p}$ (VIII, 279).

13) $\int\left\{Arctg((e^{px})) - Arctg((e^{qx}))\right\}\frac{dx}{x} = \frac{\pi}{4}\,l\frac{q}{p}$ (VIII, 436).

14) $\int\left\{Arctg((r + e^{px})) - Arctg((r + e^{qx}))\right\}\frac{dx}{x} = Arccot(r+1)\,.\,l\frac{p}{q}$ (VIII, 436).

15) $\int\left\{e^{Arctg((px))} - e^{Arctg((qx))}\right\}\frac{dx}{x} = e^{\alpha\pi}(e^{\frac{1}{2}\pi} - 1)\,l\frac{p}{q}$ (VIII, 436). Où α indéterminé.

16) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{px + pq + 1}{(x+q)^2}\,dx = \frac{1}{2q}\left[-e^{pq}Ei(-pq) + Ci(pq).(Sin pq + Cos pq) + \right.$

$\left. + \left(Si(pq) - \frac{\pi}{2}\right)(Sin pq - Cos pq)\right]$ (IV, 517).

17) $\int e^{-px}\, Arctg\frac{x}{q}\,\frac{px - pq + 1}{(x-q)^2}\,dx = \frac{1}{2q}\left[-e^{-pq}Ei(pq) + Ci(pq).(Cos pq - Sin pq) + \right.$

$\left. + \left(Si(pq) - \frac{\pi}{2}\right)(Sin pq + Cos pq)\right]$ (IV, 517).

18) $\int e^{-px} Arctg\frac{x}{q}\frac{(pq+1)x+pq^2+2q}{(x+q)^2}x\,dx = \frac{1}{2p}\left[pqe^{pq}Ei(-pq)+(pq+2)\left\{Ci(pq).Sin pq - \right.\right.$

$\left.\left. - \left(Si(pq)-\frac{\pi}{2}\right)Cos pq\right\} - pq\left\{Ci(pq).Cos pq + \left(Si(pq)-\frac{\pi}{2}\right)Sin pq\right\}\right]$ (IV, 517).

19) $\int e^{-px} Arctg\frac{x}{q}\frac{(pq-1)x-pq^2+2q}{(x-q)^2}x\,dx = \frac{1}{2p}\left[-pqe^{-pq}Ei(pq)+(pq-2)\left\{Ci(pq).Sin pq - \right.\right.$

$\left.\left. - \left(Si(pq)-\frac{\pi}{2}\right)Cos pq\right\} + pq\left\{Ci(pq).Cos pq + \left(Si(pq)-\frac{\pi}{2}\right)Sin pq\right\}\right]$ (IV, 517).

20) $\int e^{-(Arctg\,x)^2}(Arctg\,x)^{2a}\frac{dx}{1+x^2} = \left(\frac{\pi}{2}\right)^{2a+1}\sum_0^\infty \frac{1}{(2a+2n+1)\,1^{n/1}}\left(-\frac{\pi^2}{4}\right)^n$ (IV, 518).

21) $\int e^{-px} Arctg\frac{x}{q}\frac{p(x^2+q^2)Arctg\frac{x}{q}-2q}{x^2+q^2}dx = 0$ (IV, 517).

22) $\int e^{-px} Arctg\frac{x}{q}\frac{px^2+2x+pq^2}{(x^2+q^2)^2}dx = \frac{1}{2q^2}\left[Ci(pq).Sin pq - \left(Si(pq)-\frac{1}{2}\pi\right)Cos pq + \right.$

$\left. + pq\left\{Ci(pq).Cos pq + \left(Si(pq)-\frac{\pi}{2}\right)Sin pq\right\}\right]$ (IV, 518).

23) $\int e^{-px} Arctg\frac{x}{q}\frac{px^3+x^2+pq^2x-q^3}{(x^2+q^2)^2}dx = \frac{1}{2q}\left[1-pq\left\{Ci(pq).Sin pq - \left(Si(pq)-\frac{\pi}{2}\right)Cos pq\right\}\right]$

(IV, 518).

F. Algébrique;
Exponentielle;
Autre Fonction.

TABLE 400.

Lim. 0 et ∞.

1) $\int e^{-x}\,li(e^x).x^{p-1}dx = -\pi\,Cot p\pi.\Gamma(p)$ (VIII, 461).

2) $\int e^{x}\,li(e^{-x}).x^{p-1}dx = -\pi\,Cosec p\pi.\Gamma(p)$ (VIII, 459).

3) $\int li(e^{-x}).x^{p-1}dx = -\frac{1}{p}\Gamma(p)\,[0 \leqq p \leqq 1]$ (VIII, 460).

4) $\int e^{-px}\,li(e^{-x})\frac{dx}{\sqrt{x}} = -2\sqrt{\frac{\pi}{p}}.l\{\sqrt{p}+\sqrt{1+p}\}\,[0<p<1]$ (VIII, 460).

F. Algébrique; Exponentielle; Autre Fonction.	TABLE 400, suite.	Lim. 0 et ∞.

5) $\int e^{qx}\, li(e^{-x})\frac{dx}{\sqrt{x}} = -2\, Arcsin(\sqrt{p}).\sqrt{\frac{\pi}{p}}\;[0<p<1]$ (VIII, 460).

6) $\int\left\{e^{-rx}\frac{\Gamma(px+q)\Gamma(rx+s)}{\Gamma\{(p+r)x+q+s\}} - e^{-tx}\frac{\Gamma\left(\frac{pt}{r}x+q\right)\Gamma(tx+s)}{\Gamma\left\{\left(\frac{p}{r}+1\right)tx+q+s\right\}}\right\}\frac{dx}{x} = \frac{\Gamma(q)\Gamma(s)}{\Gamma(q+s)}\, l\frac{p}{r}$

Winckler, Sitz. Ber. Wien. 21, 389.

F. Algébr. rat. ent.; Logarithmique; Circul. Directe de Log.	TABLE 401.	Lim. 0 et 1.

1) $\int Sin(q\, lx).x^{p-1}dx = \frac{-q}{p^2+q^2}$ V. T. 261, N. 1.

2) $\int Cos(q\, lx).x^{p-1}dx = \frac{p}{p^2+q^2}$ V. T. 261, N. 2.

3) $\int Sin(q\, lx).(lx)^{r-1}.x^{p-1}dx = \frac{(-1)^r}{(p^2+q^2)^{\frac{1}{2}r}}\Gamma(r)\, Sin\left(r\, Arctg\frac{q}{p}\right)$ V. T. 361, N. 9.

4) $\int Cos(q\, lx).(lx)^{r-1}.x^{p-1}dx = \frac{(-1)^{r-1}}{(p^2+q^2)^{\frac{1}{2}r}}\Gamma(r)\, Cos\left(r\, Arctg\frac{q}{p}\right)$ V. T. 361, N. 10.

5) $\int Sin^{2a}(lx).x^{p-1}\,dx = \frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}\,\frac{1}{p}$ V. T. 262, N. 1.

6) $\int Sin^{2a+1}(lx).x^{p-1}dx = \frac{-1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}$ V. T. 262, N. 2.

7) $\int Cos^{2a}(lx).x^{p-1}dx = \frac{1}{p}\,\frac{1^{2a/1}}{(p^2+2^2)(p^2+4^2)\ldots\{p^2+(2a)^2\}}\left\{1+\frac{p^2}{1.2}+\frac{p^2}{1.2}\,\frac{p^2+2^2}{3.4}+\ldots+\right.$

$\left.+\frac{p^2(p^2+2^2)\ldots\{p^2+(2a-2)^2\}}{1^{2a/1}}\right\}$ V. T. 262, N. 3.

8) $\int Cos^{2a+1}(lx).x^{p-1}\,dx = p\frac{1^{2a+1/1}}{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a+1)^2\}}\left\{1+\frac{p^2+1^2}{1.2.3}+\ldots+\right.$

$\left.+\frac{(p^2+1^2)(p^2+3^2)\ldots\{p^2+(2a-1)^2\}}{1^{2a+1/1}}\right\}$ V. T. 262, N. 4.

9) $\int Sin(q\, lx).l\, l\frac{1}{x}.x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{-p\, Arctg\frac{q}{p}+\frac{1}{2}q\, l(p^2+q^2)+qA\right\}$ V. T. 467, N. 1.

Page 572.

10) $\int Cos(q\,l\,x).\,l\,l\frac{1}{x}\,.\,x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{q\,Arctg\frac{q}{p}+\frac{1}{2}p\,l(p^2+q^2)+p\,\mathrm{A}\right\}$ V. T. 467, N. 2.

11) $\int Cot(q\,l\,x)\,.\,x^{p-1}\,dx = 4\,q\sum_1^\infty \frac{n}{p^2+4\,n^2\,q^2}$ V. T. 261, N. 8.

12) $\int Sin\left\{(q\,l\,x)^2\right\}.\,x^{2p-1}\,dx = \frac{1}{4q}\left\{Cos\left(\frac{p^2}{q^2}\right)+Sin\left(\frac{p^2}{q^2}\right)\right\}\sqrt{2\pi}-\frac{p}{q^2}\left\{Cos\left(\frac{p^2}{q^2}\right).\sum_0^\infty\frac{(-1)^n}{(4n+1)\,1^{2n/1}}\right.$
$\left.\left(\frac{p}{q}\right)^{4n}+Sin\left(\frac{p^2}{q^2}\right).\sum_1^\infty\frac{(-1)^n}{(4n-1)\,1^{2n-1/1}}\left(\frac{p}{q}\right)^{4n-2}\right\}$ V. T. 262, N. 15.

13) $\int Cos\left\{(q\,l\,x)^2\right\}.\,x^{2p-1}\,dx = \frac{1}{4q}\left\{Cos\left(\frac{p^2}{q^2}\right)-Sin\left(\frac{p^2}{q^2}\right)\right\}\sqrt{2\pi}-\frac{p}{q^2}\left\{Sin\left(\frac{p^2}{q^2}\right).\sum_0^\infty\frac{(-1)^n}{(4n+1)\,1^{2n/1}}\right.$
$\left.\left(\frac{p}{q}\right)^{4n}-Cos\left(\frac{p^2}{q^2}\right)\sum_1^\infty\frac{(-1)^n}{(4n-1)\,1^{2n-1/1}}\left(\frac{p}{q}\right)^{4n-2}\right\}$ V. T. 262, N. 16.

14) $\int Sin\left\{p^2-(l\,x)^2\right\}.\,x^{2p-1}\,dx = -\frac{\pi}{2\sqrt{2}}-p\sum_0^\infty\frac{(-p^4)^n\,Cos(2p^2)}{(4n+1)\,1^{2n/1}}-\frac{1}{p^2}\sum_1^\infty\frac{(-p^4)^n\,Sin(2p^2)}{(4n-1)\,1^{2n-1/1}}$
V. T. 401, N. 12, 13.

15) $\int Cos\left\{p^2-(l\,x)^2\right\}.\,x^{2p-1}\,dx = \frac{\pi}{2\sqrt{2}}-p\sum_0^\infty\frac{(-p^4)^n\,Sin(2p^2)}{(4n+1)\,1^{2n/1}}-\frac{1}{p^2}\sum_1^\infty\frac{(-p^4)^n\,Cos(2p^2)}{(4n-1)\,1^{2n-1/1}}$
V. T. 401, N. 12, 13.

16) $\int Sin^a(l\,x)\,.\,x^{p-1}\,dx = \frac{(-1)^a-e^{p\pi}}{\Gamma\left(\frac{a+pi}{2}+1\right)\Gamma\left(\frac{a-pi}{2}+1\right)}\frac{\pi}{2}\,1^{a-1/1}\,e^{p\pi}$ (IV, 520).

17) $\int Cos\left(q\sqrt{l\frac{1}{x}}\right).\,x^{p-1}\,dx = \frac{1}{p}+\frac{1}{2p}\sum_1^\infty\frac{(-1)^n}{n^{n/1}}\left(\frac{q^2}{p}\right)^n$ V. T. 362, N. 2.

18) $\int Sin(q\,l\,x).\,x^{p-1}\sqrt{l\frac{1}{x}}\,.\,dx = -\frac{1}{4}\sqrt{\left[\frac{2\pi}{(p^2+q^2)^3}\left\{-p^3+3\,p\,q^2+\sqrt{p^2+q^2}^{\,3}\right\}\right]}$ V. T. 394, N. 1.

19) $\int Cos(q\,l\,x)\,.\,x^{p-1}\sqrt{l\frac{1}{x}}\,.\,dx = \frac{1}{4}\sqrt{\left[\frac{2\pi}{(p^2+q^2)^3}\left\{p^3-3\,p\,q^2+\sqrt{p^2+q^2}^{\,3}\right\}\right]}$ V. T. 394, N. 4.

20) $\int l\,Sin\left(q\,l\frac{1}{x}\right).\,x^{2p-1}\,dx = \frac{1}{2p}\,l\frac{1}{2}-\frac{p}{4}\sum_1^\infty\frac{1}{n}\,\frac{1}{p^2+n^2\,q^2}$ V. T. 467, N. 4.

21) $\int l\,Cos\left(q\,l\frac{1}{x}\right).\,x^{2p-1}\,dx = -\frac{1}{2p}\,l\,2+\frac{p}{4}\sum_1^\infty\frac{(-1)^{n-1}}{n}\,\frac{1}{p^2+n^2\,q^2}$ V. T. 467, N. 5.

22) $\int l\,Tang\left(q\,l\frac{1}{x}\right).\,x^{2p-1}\,dx = -p\sum_1^\infty\frac{1}{2n-1}\,\frac{1}{p^2+(2n-1)^2\,q^2}$ V. T. 467, N. 6.

1) $\int Sin(p\,l\,x)\frac{dx}{1+x}=\frac{\pi e^{p\pi}}{e^{2p\pi}-1}-\frac{1}{2p}$ V. T. 402, N. 9, 10.

2) $\int Sin(p\,l\,x)\frac{dx}{1-x}=-\frac{\pi}{2}\frac{e^{2p\pi}+1}{e^{2p\pi}-1}+\frac{1}{2p}$ V. T. 264, N. 2.

3) $\int Sin(p\,l\,x)\frac{x^{a-1}\,dx}{1-x}=-\frac{\pi}{2}+\frac{1}{2p}+\frac{\pi}{1-e^{2p\pi}}+\sum_{0}^{a}\frac{p}{p^2+(n+1)^2}$ V. T. 264, N. 8.

4) $\int Sin(p\,l\,x)\frac{x^{q-1}\,dx}{1-x}=\Phi-\frac{1}{2p}Sin\Phi+\sum_{1}^{\infty}(-1)^n\frac{Sin^{2n}\Phi\,.\,Sin\,2n\Phi}{2np^{2n}}B_{2n-1}$ V. T. 264, N. 12.

Où $Cot\Phi=\frac{q-1}{p}$

5) $\int Sin(p\,l\,x)\frac{lx}{1+x^2}dx=\frac{1}{4}\pi^2\frac{e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}}{(e^{\frac{1}{2}p\pi}+e^{-\frac{1}{2}p\pi})^2}$ V. T. 364, N. 6.

6) $\int Cos(p\,l\,x)\frac{dx}{1+x^2}=\frac{\pi}{2}\frac{e^{\frac{1}{2}p\pi}}{e^{p\pi}+1}$ V. T. 264, N. 14.

7) $\int Sin(p\,l\,x)\frac{x^q-x^{-q}}{1+x^2}dx=\pi\,Sin\frac{1}{2}q\pi\frac{e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[p^2<1,q^2<1]$ V. T. 265, N. 2.

8) $\int Cos(p\,l\,x)\frac{x^q+x^{-q}}{1+x^2}dx=\pi\,Cos\frac{1}{2}q\pi\frac{e^{\frac{1}{2}p\pi}+e^{-\frac{1}{2}p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[p^2<1,q^2<1]$ V. T. 265, N. 6.

9) $\int Sin(p\,l\,x)\frac{dx}{1-x^2}=\frac{\pi}{4}\frac{1-e^{p\pi}}{1+e^{p\pi}}$ V. T. 264, N. 6.

10) $\int Sin(p\,l\,x)\frac{x\,dx}{1-x^2}=\frac{\pi}{2}\frac{1+e^{p\pi}}{1-e^{p\pi}}+\frac{1}{2p}$ V. T. 264, N. 2.

11) $\int Sin(p\,l\,x)\frac{x^{q-1}}{1-x^2}dx=-\sum_{1}^{\infty}\frac{p}{(2n+q)^2+p^2}$ V. T. 264, N. 11.

12) $\int Sin(p\,l\,x)\frac{x^q+x^{-q}}{1-x^2}dx=-\frac{\pi}{2}\frac{e^{p\pi}-e^{-p\pi}}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ $[q^2\leqq 1]$ V. T. 265, N. 4.

13) $\int Cos(p\,l\,x)\frac{lx}{1-x^2}dx=\frac{1}{2}\pi^2\frac{e^{p\pi}}{(e^{p\pi}+1)^2}$ V. T. 364, N. 7.

14) $\int Cos(p\,l\,x)\frac{x^q-x^{-q}}{1-x^2}dx=\frac{-\pi\,Sin\,q\pi}{e^{p\pi}+2\,Cos\,q\pi+e^{-p\pi}}$ V. T. 265, N. 7.

15) $\int Sin^2(p\,l\,x)\frac{dx}{1+x^2}=\frac{\pi}{8}\frac{(e^{p\pi}-1)^2}{e^{2p\pi}+1}$ V. T. 264, N. 17.

16) $\int Cos^2(p\,l\,x)\frac{dx}{1+x^2}=\frac{\pi}{8}\frac{(e^{p\pi}+1)^2}{e^{2p\pi}+1}$ V. T. 264, N. 18.

F. Alg. rat. fract. à dén. binôme;
Logarithmique; TABLE 402, suite. Lim. 0 et 1.
Circul. Directe de Log.

17) $\int Sin(p\,lx)\frac{x^{q-1}}{1-x^q}dx=\frac{\pi}{2q}\frac{1+e^{\frac{2p\pi}{q}}}{1-e^{\frac{2p\pi}{q}}}+\frac{1}{2p}$ V. T. 264, N. 2.

18) $\int Sin(p\,lx)\frac{x^{q-1}}{1+x^q}dx=\frac{\pi}{q}\frac{1}{e^{\frac{p\pi}{q}}-e^{-\frac{p\pi}{q}}}-\frac{1}{2p}$ V. T. 264, N. 1.

19) $\int Sin(p\,lx)\frac{x^r+x^{-r}}{1-x^q}x^{q-1}dx=\frac{p}{p^2+r^2}-\frac{\pi}{q}\frac{e^{\frac{2p\pi}{q}}-e^{-\frac{2p\pi}{q}}}{e^{\frac{p\pi}{q}}-2\,Cos\frac{2r\pi}{q}+e^{-\frac{p\pi}{q}}}\;[r<q]$ V. T. 265, N. 5.

20) $\int Cos(p\,lx)\frac{x^r-x^{-r}}{1-x^q}x^{q-1}dx=\frac{p}{p^2+r^2}-\frac{\pi}{q}\frac{Sin\frac{2r\pi}{q}}{e^{\frac{2p\pi}{q}}-2\,Cos\frac{2r\pi}{q}+e^{-\frac{2p\pi}{q}}}\;[r<q]$ V. T. 265, N. 8.

F. Alg. rat. fract. à dén. $x(q^p+x^p)$;
Logarithmique; TABLE 403. Lim. 0 et 1.
Circ. Directe de Log.

1) $\int Sin(p\,lx)\frac{1-x^q}{1+x^q}\frac{dx}{x}=\frac{1}{q}\frac{-2\pi}{e^{\frac{p\pi}{q}}-e^{-\frac{p\pi}{q}}}$ V. T. 265, N. 1.

2) $\int Sin(p\,lx)\frac{1+x^q}{1-x^q}\frac{dx}{x}=\frac{\pi}{q}\frac{1+e^{\frac{2p\pi}{q}}}{1-e^{\frac{2p\pi}{q}}}$ V. T. 265, N. 3.

3) $\int Cos(p\,lx)\frac{1-x^q}{1+x^q}\frac{lx}{x}dx=\frac{2}{q}\pi^2e^{-\frac{p\pi}{q}}\frac{1+e^{-\frac{2p\pi}{q}}}{\left(1-e^{-\frac{2p\pi}{q}}\right)^2}$ V. T. 364, N. 4.

4) $\int Cos(p\,lx)\frac{1+x^q}{1-x^q}\frac{lx}{x}dx=\frac{2}{q}\pi^2e^{-\frac{2p\pi}{q}}\frac{1}{\left(1-e^{-\frac{2p\pi}{q}}\right)^2}$ V. T. 364, N. 3.

5) $\int\frac{Sin(p\,lx)}{x^q-x^{-q}}\frac{dx}{x}=\frac{\pi}{4q}\frac{e^{\frac{p\pi}{q}}-1}{e^{\frac{p\pi}{q}}+1}\;[p<q]$ V. T. 264, N. 6.

6) $\int\frac{Cos(p\,lx)}{x^q+x^{-q}}\frac{dx}{x}=\frac{\pi}{2q}\frac{1}{e^{\frac{p\pi}{2q}}+e^{-\frac{p\pi}{2q}}}\;[p<q]$ V. T. 264, N. 14.

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7) $\int \frac{x^p - x^{-p}}{x^q + x^{-q}} Sin(r\,l\,x)\frac{dx}{x} = \frac{\pi}{q}\frac{e^{\frac{r\pi}{2q}} - e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}} Sin\frac{p\pi}{2q}\;[p<2q]$ V. T. 265, N. 2.

8) $\int \frac{x^p + x^{-p}}{x^q - x^{-q}} Sin(r\,l\,x)\frac{dx}{x} = \frac{\pi}{2q}\frac{e^{\frac{r\pi}{q}} - e^{-\frac{r\pi}{q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}}\;[p<q]$ V. T. 265, N. 4.

9) $\int \frac{x^p + x^{-p}}{x^q + x^{-q}} Cos(r\,l\,x)\frac{dx}{x} = \frac{\pi}{q}\frac{e^{\frac{r\pi}{2q}} + e^{-\frac{r\pi}{2q}}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}} Cos\frac{p\pi}{2q}\;[p<2q]$ V. T. 265, N. 6.

10) $\int \frac{x^p - x^{-p}}{x^q - x^{-q}} Cos(r\,l\,x)\frac{dx}{x} = \frac{\pi}{q}\frac{Sin\frac{p\pi}{q}}{e^{\frac{r\pi}{q}} + 2\,Cos\frac{p\pi}{q} + e^{-\frac{r\pi}{q}}}\;[p<q]$ V. T. 265, N. 7.

11) $\int \frac{Sin^2(p\,l\,x)}{x^q + x^{-q}}\frac{dx}{x} = \frac{\pi}{8q}\frac{\left(e^{\frac{p\pi}{q}} - 1\right)^2}{e^{\frac{2p\pi}{q}} + 1}$ V. T. 264, N. 17.

12) $\int \frac{Cos^2(p\,l\,x)}{x^q + x^{-q}}\frac{dx}{x} = \frac{\pi}{8q}\frac{\left(e^{\frac{p\pi}{q}} + 1\right)^2}{e^{\frac{2p\pi}{q}} + 1}$ V. T. 264, N. 18.

F. Alg. rat. fract. à autre dén.;
Logarithmique; TABLE 404. Lim. 0 et 1.
Circ. Directe de Log.

1) $\int Cos(p\,l\,x).\,l(1+x)\frac{dx}{x} = \frac{1}{2p^2} - \frac{\pi}{p}\frac{e^{p\pi}}{e^{2p\pi} - 1}$ V. T. 402, N. 1.

2) $\int Cos(p\,l\,x).\,l(1-x)\frac{dx}{x} = \frac{1}{2p^2} - \frac{\pi}{2p}\frac{e^{2p\pi} + 1}{e^{2p\pi} - 1}$ V. T. 402, N. 2.

3) $\int Cos(p\,l\,x).\,l(1-x^2)\frac{dx}{x} = \frac{1}{p^2} + \frac{\pi}{p}\frac{1 + e^{p\pi}}{1 - e^{p\pi}}$ V. T. 402, N. 9.

4) $\int Cos(p\,l\,x)\frac{x^{q-1}}{(1+x^q)^2}dx = \frac{p}{q^2}\frac{\pi}{e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}}$ (IV, 522).

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5) $\int Sin(p\,l\,x)\,\frac{d\,x}{(1-x^2)\,x^{q+1}} = -\sum_1^\infty \frac{p}{(2\,n-q)^2+p^2}$ V. T. 264, N. 10.

6) $\int Cos(p\,l\,x)\,\frac{d\,x}{1+2\,x\,Cos\,\lambda+x^2} = \frac{\pi}{2}\,Cosec\,\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}\,[\lambda \leqq \pi]$ V. T. 267, N. 3.

7) $\int Sin(q\,l\,x)\,\frac{x^{2p}-1}{1+2\,x^{2p}\,Cos(2\,q\,l\,x)+x^{4p}}\,x^{p-1}\,d\,x = \frac{\pi}{4}\,\frac{q}{p^2+q^2}$ V. T. 267, N. 7.

8) $\int Cos(q\,l\,x)\,\frac{x^{2p}+1}{1+2\,x^{2p}\,Cos(2\,q\,l\,x)+x^{4p}}\,x^{p-1}\,d\,x = \frac{\pi}{4}\,\frac{p}{p^2+q^2}$ V. T. 267, N. 8.

9) $\int Cos(q\,l\,x)\,\frac{1}{x^p+2\,Cos\,\lambda+x^{-p}}\,\frac{d\,x}{x} = \frac{\pi}{2\,p}\,Cosec\,\lambda\,\frac{e^{\frac{q\lambda}{p}}-e^{-\frac{q\lambda}{p}}}{e^{\frac{q\pi}{p}}-e^{-\frac{q\pi}{p}}}\,[\lambda < \pi]$ (IV, 523).

10) $\int Sin(p\,l\,x)\,\frac{1-x^2}{1+2\,x\,Cos\,\lambda+x^2}\,\frac{d\,x}{x} = -\pi\,\frac{e^{p\lambda}+e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 267, N. 1.

11) $\int Cos(q\,l\,x)\,\frac{1+x^2}{1+2\,x\,Cos\,\lambda+x^2}\,\frac{d\,x}{x} = -\pi\,Cot\,\lambda\,\frac{e^{p\lambda}-e^{-p\lambda}}{e^{p\pi}-e^{-p\pi}}$ V. T. 267, N. 5.

12) $\int \frac{Cos(q\,l\,x)}{x^p+\left(a+\frac{1}{a}\right)+x^{-p}}\,\frac{d\,x}{x} = \frac{2}{p}\,\frac{a\,\pi}{1-a^2}\,\frac{Sin\left(\frac{q}{p}\,l\,a\right)}{e^{\frac{q\pi}{p}}-e^{\frac{-q\pi}{p}}}$ (IV, 523).

13) $\int Cos(p\,l\,x)\,\frac{d\,x}{(1+x)\sqrt{x}} = \frac{\pi}{e^{p\pi}+e^{-p\pi}}$ V. T. 264, N. 14.

F. Alg. rat.;
Log. en dén. $(l\,x)^a$; TABLE 405. Lim. 0 et 1.
Circ. Directe.

1) $\int Sin(p\,l\,x).x^a\,\frac{d\,x}{l\,x} = Arctg\left(\frac{p}{a+1}\right)$ (IV, 523).

2) $\int Sin\left(q\sqrt{l\frac{1}{x}}\right).x^{p-1}\,\frac{d\,x}{l\,x} = q\sqrt{\frac{\pi}{p}}\,.\sum_0^\infty \frac{(-1)^{n-1}}{(2\,n+1)\,1^{n/1}}\left(\frac{q^2}{4\,p}\right)^n$ V. T. 365, N. 21.

3) $\int Sin(l\,x)\,\frac{1+x}{l\,x}\,x\,d\,x = \frac{1}{4}\,\pi$ (IV, 523).

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4) $\int \{x^{p-1} \, Sin\,(r\,lx) - x^{q-1} \, Sin\,(s\,lx)\} \frac{dx}{lx} = Arctg\left(\frac{qr-ps}{pq+rs}\right)$ V. T. 367, N. 11.

5) $\int Cos(q\,lx).x^{p-1} \frac{dx}{lx} = \infty$ V. T. 365, N. 3.

6) $\int \{x^{p-1} \, Cos\,(r\,lx) - x^{q-1} \, Cos\,(s\,lx)\} \frac{dx}{lx} = \frac{1}{2} \, l \frac{p^2+r^2}{q^2+s^2}$ V. T. 367, N. 12.

7) $\int Sin^2(q\,lx).x^{p-1} \frac{dx}{lx} = \frac{1}{4} \, l \frac{p^2}{p^2+4q^2}$ V. T. 365, N. 4.

8) $\int Sin\,rx.(x^{p-1} - x^{q-1}) \frac{dx}{lx} = \sum_1^\infty \frac{(-1)^n}{1^{2n+1/1}} r^{2n+1} \, l \frac{p+2n+1}{q+2n+1}$ (VIII, 492).

9) $\int Cos\,rx.(x^{p-1} - x^{q-1}) \frac{dx}{lx} = l\frac{p}{q} + \sum_1^\infty \frac{(-1)^n}{1^{2n/1}} r^{2n} \, l \frac{p+2n}{q+2n}$ (VIII, 492).

10) $\int Sin^2(q\,lx).x^{p-1} \frac{dx}{(lx)^2} = q \, Arctg \frac{2q}{p} - \frac{p}{4} \, l \frac{p^2+4q^2}{p^2}$ V. T. 368, N. 2.

11) $\int \{x^{p-1} Sin\,(r\,lx) - x^{q-1} Sin\,(s\,lx)\} \frac{dx}{(lx)^{a+1}} = (-1)^{a-1} \frac{\Gamma(1-a)}{a} \Big\{(q^2+s^2)^{\frac{1}{2}a} Sin\left(a \, Arctg \frac{s}{q}\right) -$

$- (p^2+r^2)^{\frac{1}{2}a} \, Sin\left(a \, Arctg \frac{r}{p}\right)\Big\}$ V. T. 371, N. 6.

12) $\int \{x^{p-1} Cos\,(r\,lx) - x^{q-1} Cos\,(s\,lx)\} \frac{dx}{(lx)^{a+1}} = (-1)^{a-1} \frac{\Gamma(1-a)}{a} \Big\{(q^2+s^2)^{\frac{1}{2}a} Cos\left(a \, Arctg \frac{s}{q}\right) -$

$- (p^2+r^2)^{\frac{1}{2}a} \, Cos\left(a \, Arctg \frac{r}{p}\right)\Big\}$ V. T. 371, N. 7.

13) $\int \frac{Sin\,(2p\,lx)}{lx} \frac{dx}{1+x^2} = Arctg\,(e^{p\pi})$ V. T. 387, N. 1.

14) $\int \frac{Cos\,(2p\,lx)}{lx} \frac{dx}{1-x^2} = -\frac{1}{2} \, l(e^{p\pi} + e^{-p\pi})$ V. T. 387, N. 2.

15) $\int \frac{Cos\,(2p\,lx)}{x\,lx} \frac{x^q - x^{-q}}{x^q + x^{-q}} \, dx = l \frac{1 - e^{-\frac{p\pi}{q}}}{1 + e^{-\frac{p\pi}{q}}}$ V. T. 387, N. 8.

16) $\int \frac{Cos\,(2p\,lx)}{x\,lx} \frac{x^q + x^{-q}}{x^q - x^{-q}} \, dx = -l\left(e^{\frac{p\pi}{q}} - e^{-\frac{p\pi}{q}}\right)$ V. T. 387, N. 9.

F. Alg. rat.;
Log. en dén. $\sqrt{-lx}$;
Circul. Dir. de Log.

TABLE 406.

Lim. 0 et 1.

1) $\int Sin(p\,l\,x).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=-\sqrt{\left\{\frac{\pi}{2}\,\frac{\sqrt{p^2+q^2}-q}{p^2+q^2}\right\}}$ V. T. 395, N. 1.

2) $\int Cos(p\,l\,x).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=\sqrt{\left\{\frac{\pi}{2}\,\frac{q+\sqrt{p^2+q^2}}{p^2+q^2}\right\}}$ V. T. 395, N. 2.

3) $\int Sin\left(\frac{2p^2}{lx}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=-e^{-2p\sqrt{q}}\,Sin(2p\sqrt{q}).\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 12.

4) $\int Cos\left(\frac{2p^2}{lx}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=e^{-2p\sqrt{q}}\,Cos(2p\sqrt{q}).\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 13.

5) $\int Sin\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=\frac{2}{p}\sum_0^\infty\frac{(-1)^n}{(n+2)^{n+1/1}}\left(\frac{p^2}{q}\right)^{n+1}$ V. T. 263, N. 1.

6) $\int Cos\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=e^{-\frac{p^2}{4q}}\sqrt{\frac{\pi}{q}}$ V. T. 263, N. 2.

7) $\int Cot\left(p\sqrt{l\frac{1}{x}}\right).x^{q-1}\frac{dx}{\sqrt{l\frac{1}{x}}}=2\sqrt{\frac{\pi}{q}}.\sum_1^\infty e^{-n^2\frac{p^2}{q}}$ V. T. 263, N. 7.

F. Alg. rat. fract.;
Log. en dén. $q^2\pm(lx)^2$;
Circul. Dir. de Log.

TABLE 407.

Lim. 0 et 1.

1) $\int\frac{Sin(2p\,l\,x)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{dx}{1-x^2}=-\frac{e^{p\pi}+e^{-p\pi}}{\pi}\,Arctg(e^{-p\pi})+\frac{1}{2}e^{-p\pi}$ V. T. 389, N. 2.

2) $\int\frac{Sin(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{dx}{1-x^2}=\frac{1}{4}p\,e^{p\pi}-\frac{e^{p\pi}-e^{-p\pi}}{4\pi}\,l(1+e^{-p\pi})$ V. T. 389, N. 4.

3) $\int\frac{Sin(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{1+x^2}{1-x^2}dx=-\frac{p}{2}e^{-p\pi}+\frac{e^{p\pi}-e^{-p\pi}}{2\pi}\,l(1-e^{-p\pi})$ V. T. 389, N. 5.

4) $\int\frac{Sin(p\,l\,x)}{\pi^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}dx=\frac{1}{2}e^{-p\pi}(p\,Cos\,q\pi+q\,Sin\,q\pi)-\frac{e^{p\pi}-e^{-p\pi}}{4\pi}\,Cos\,q\pi\,.$

$l(1+2e^{-p\pi}\,Cos\,q\pi+e^{-2p\pi})-\frac{e^{p\pi}+e^{-p\pi}}{2\pi}\,Sin\,q\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)\;[q^2\leqq 1]$

V. T. 389, N. 9.

5) $\int \frac{Sin(p\,l x)}{\pi^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi}{2}e^{-p\pi}(p\,Sin\,q\pi - q\,Cos\,q\pi)+\frac{e^{p\pi}-e^{-p\pi}}{4}Sin\,q\pi\,.$
$l(1+2e^{-p\pi}Cos\,q\pi+e^{-2p\pi})-\frac{e^{p\pi}+e^{-p\pi}}{2}Cos\,q\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2<1]$

V. T. 389, N. 10.

6) $\int \frac{Sin(p\,lx)}{r^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,dx = -\frac{\pi}{2r^2}+\frac{\pi e^{-pr}\,Cos\,qr}{2r\,Sin\,r}+\pi\sum_1^\infty(-1)^n\frac{e^{-np\pi}Cos\,nq\pi}{n^2\pi^2-r^2}$ $[0 \leqq q \leqq 1]$

V. T. 389, N. 21.

7) $\int \frac{Sin(p\,lx)}{r^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi e^{-pr}\,Sin\,qr}{r\,Sin\,r}+\pi^2\sum_1^\infty(-1)^{n-1}\frac{n\,e^{-np\pi}\,Sin\,nq\pi}{n^2\pi^2-r^2}$

V. T. 389, N. 23.

8) $\int \frac{Cos(p\,lx)}{\pi^2+(lx)^2}\,\frac{lx}{1-x^2}\,dx = \frac{1}{4}-\frac{1}{4}p\pi e^{-p\pi}-\frac{e^{p\pi}+e^{-p\pi}}{4}l(1+e^{-p\pi})$ V. T. 389, N. 14.

9) $\int \frac{Cos(p\,lx)}{\pi^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,dx = \frac{1}{2}e^{-p\pi}(q\,Cos\,q\pi-p\,Sin\,q\pi)-\frac{e^{p\pi}+e^{-p\pi}}{4\pi}Sin\,q\pi\,.$
$l(1+2e^{-p\pi}Cos\,q\pi+e^{-2p\pi})+\frac{e^{p\pi}-e^{-p\pi}}{2\pi}Cos\,q\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2<1]$

V. T. 389, N. 20.

10) $\int \frac{Cos(p\,lx)}{\pi^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,lx.dx = \frac{1}{2}-\frac{\pi}{2}e^{-p\pi}(p\,Cos\,q\pi+q\,Sin\,q\pi)-\frac{e^{p\pi}+e^{-p\pi}}{4}Cos\,q\pi\,.$
$l(1+2e^{-p\pi}Cos\,q\pi+e^{-2p\pi})-\frac{e^{p\pi}-e^{-p\pi}}{2}Sin\,p\pi\,.\,Arctg\left(\frac{Sin\,q\pi}{e^{p\pi}+Cos\,q\pi}\right)$ $[q^2 \leqq 1]$

V. T. 389, N. 19.

11) $\int \frac{Cos(p\,lx)}{r^2+(lx)^2}\,\frac{x^q-x^{-q}}{1-x^2}\,dx = -\frac{\pi e^{-pr}\,Sin\,qr}{2r\,Sin\,r}-\pi\sum_1^\infty(-1)^n\frac{e^{-np\pi}\,Sin\,nq\pi}{n^2\pi^2-r^2}$ $[0<q<1]$

V. T. 389, N. 22.

12) $\int \frac{Cos(p\,lx)}{r^2+(lx)^2}\,\frac{x^q+x^{-q}}{1-x^2}\,lx.dx = -\frac{\pi e^{-pr}\,Cos\,qr}{2\,Sin\,r}+\pi^2\sum_1^\infty(-1)^{n-1}\frac{n\,e^{-np\pi}\,Cos\,nq\pi}{n^2\pi^2-r^2}$

V. T. 389, N. 24.

13) $\int \frac{Sin(2p\,lx)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{1-x}{1+x}\,\frac{dx}{x} = e^{p\pi}+\frac{e^{p\pi}-e^{-p\pi}}{\pi}\,l\frac{e^{p\pi}-1}{e^{p\pi}+1}-2\frac{e^{p\pi}+e^{-p\pi}}{\pi}Arctg(e^{p\pi})$

V. T. 388, N. 4.

14) $\int \frac{Sin(2p\,lx)}{\frac{1}{4}\pi^2+(lx)^2}\,\frac{1+x}{1-x}\,\frac{dx}{x} = e^{-p\pi}+\frac{e^{p\pi}-e^{-p\pi}}{\pi}\,l\frac{e^{p\pi}-1}{e^{p\pi}+1}-2\frac{e^{p\pi}+e^{-p\pi}}{\pi}Arctg(e^{-p\pi})$

V. T. 389, N. 3.

15) $\int \frac{Sin(plx)}{\pi^2+(lx)^2}\frac{1-x}{1+x}\frac{dx}{x} = \frac{e^{p\pi}-e^{-p\pi}}{2\pi} l(1-e^{-2p\pi}) - pe^{-p\pi}$ V. T. 388, N. 3.

16) $\int \frac{Sin(plx)}{\pi^2+(lx)^2}\frac{1+x}{1-x}\frac{dx}{x} = \frac{e^{p\pi}-e^{-p\pi}}{2\pi} l\frac{e^{p\pi}-1}{e^{p\pi}+1}$ V. T. 389, N. 6.

17) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2}\frac{1-x}{1+x}\frac{lx}{x}dx = \frac{\pi}{2}e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{p\pi})$

V. T. 388, N. 8.

18) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2}\frac{1+x}{1-x}\frac{lx}{x}dx = 2 - \frac{\pi}{2}e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{-p\pi})$

V. T. 389, N. 13.

19) $\int \frac{Cos(plx)}{\pi^2+(lx)^2}\frac{1+x^2}{1-x^2}\frac{lx}{x}dx = \frac{1}{2} + \frac{\pi}{2}pe^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l(1-e^{-p\pi})$ V. T. 389, N. 15.

20) $\int \frac{Cos(plx)}{\pi^2+(lx)^2}\frac{1+x}{1-x}\frac{lx}{x}dx = 1 + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{e^{p\pi}-1}{e^{p\pi}+1}$ V. T. 389, N. 16.

21) $\int \frac{Sin(lx)}{x^q+2\,Cos(lx)+x^{-q}}\frac{lx}{\pi^2-(lx)^2}\frac{dx}{x} = \frac{1}{2q} - \frac{1}{2} Arccot\, q$ V. T. 390, N. 1.

22) $\int \frac{Sin(lx)}{x^q-2\,Cos(lx)+x^{-q}}\frac{lx}{\pi^2-(lx)^2}\frac{dx}{x} = \frac{1}{2} Arccot\, q - \frac{1}{2}\frac{q}{1+q^2}$ V. T. 390, N. 2.

23) $\int \frac{Cos(plx)}{\pi^2+(lx)^2}\frac{1+x^2}{1-x^2}\frac{dx}{x\,lx} = \frac{-1}{2\pi^2}\frac{1-p\pi+p\pi e^{-pq}}{1-e^{-p\pi}} - \frac{(e^{\frac{1}{2}p\pi}-e^{-\frac{1}{2}p\pi})^2}{2\pi^2} l(1-e^{-p\pi})$

V. T. 390, N. 5.

24) $\int \frac{Sin(lx)}{x^{2q}-2\,Cos(2lx)+x^{-2q}}\frac{x^q+x^{-q}}{\pi^2-(lx)^2} lx\frac{dx}{x} = \frac{1}{2q}\frac{1}{1+q^2}$ V. T. 390, N. 3.

25) $\int \frac{Sin(2lx)}{x^{2q}-2\,Cos(2lx)+x^{-2q}}\frac{lx}{\pi^2-(lx)^2}\frac{dx}{x} = \frac{1}{4q}\frac{1+2q^2}{1+q^2} - \frac{1}{2} Arctg\frac{1}{q}$ V. T. 390, N. 4.

F. Alg. irrat. fract.;
Log. en dén. $q^2 \pm (lx)^2$; TABLE 408. Lim. 0 et 1.
Circul. Dir. de Log.

1) $\int \frac{Sin(2plx)}{\frac{1}{4}\pi^2+(lx)^2}\frac{lx}{1+x}\frac{dx}{\sqrt{x}} = \frac{\pi}{2\sqrt{2}}e^{-p\pi} + \frac{e^{p\pi}-e^{-p\pi}}{4\sqrt{2}} l\frac{e^{p\pi}+\sqrt{2}+e^{-p\pi}}{e^{p\pi}-\sqrt{2}+e^{-p\pi}} -$

$- \frac{e^{p\pi}+e^{-p\pi}}{2\sqrt{2}} Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 388, N. 1.

2) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{lx}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} p\pi e^{-p\pi} - \frac{e^{p\pi}-e^{-p\pi}}{4} l(1+e^{-2p\pi})$ V. T. 388, N. 2.

3) $\int \frac{Sin(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1}{1-x} \frac{dx}{\sqrt{x}} = \frac{e^{-p\pi}}{\pi\sqrt{2}} + \frac{e^{p\pi}-e^{-p\pi}}{2\pi\sqrt{2}} l\frac{e^{p\pi}-\sqrt{2}+e^{-p\pi}}{e^{p\pi}+\sqrt{2}+e^{-p\pi}} - \frac{e^{p\pi}+e^{-p\pi}}{\pi\sqrt{2}}$

$Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 389, N. 1.

4) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{1}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{4} e^{-p\pi} - \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Arctg(e^{-p\pi})$ V. T. 389, N. 2.

5) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{x^q+x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{2} e^{-p\pi} Cos\,q\pi + \frac{e^{p\pi}-e^{-p\pi}}{4\pi} Sin\,q\pi \,.\, l\frac{e^{p\pi}-2\,Sin\,q\pi+e^{-p\pi}}{e^{p\pi}+2\,Sin\,q\pi+e^{-p\pi}} -$

$- \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Cos\,q\pi \,.\, Arctg\left(\frac{2\,Cos\,q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 \leqq \frac{1}{4}\right]$ V. T. 389, N. 7.

6) $\int \frac{Sin(plx)}{\pi^2+(lx)^2} \frac{x^q-x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = -\frac{1}{2} e^{-p\pi} Sin\,q\pi + \frac{e^{p\pi}-e^{-p\pi}}{4\pi} Cos\,q\pi \,.\, l\frac{1-2e^{-p\pi}Sin\,q\pi+e^{-2p\pi}}{1+2e^{-p\pi}Sin\,q\pi+e^{-2p\pi}} +$

$+ \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Sin\,q\pi \,.\, Arctg\left(\frac{2\,Cos\,q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 < \frac{1}{4}\right]$ V. T. 389, N. 8.

7) $\int \frac{Cos(2plx)}{\frac{1}{4}\pi^2+(lx)^2} \frac{1}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} e^{-p\pi}\sqrt{2} - \frac{e^{p\pi}+e^{-p\pi}}{2\pi\sqrt{2}} l\frac{1+e^{-p\pi}\sqrt{2}+e^{-2p\pi}}{1-e^{-p\pi}\sqrt{2}+e^{-2p\pi}} + \frac{e^{p\pi}-e^{-p\pi}}{\pi\sqrt{2}}$

$Arctg\left(\frac{\sqrt{2}}{e^{p\pi}-e^{-p\pi}}\right)$ V. T. 388, N. 5.

8) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1}{1+x} \frac{dx}{\sqrt{x}} = \frac{1}{2} p e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{4\pi} l(1+e^{-2p\pi})$ V. T. 388, N. 6.

9) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1+\sqrt{x}}{1-\sqrt{x}} \frac{lx}{\sqrt{x}} dx = 2 - \frac{\pi}{2} e^{-p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{1-e^{-p\pi}}{1+e^{-p\pi}} - (e^{p\pi}-e^{-p\pi})$

$Arctg(e^{-p\pi})$ V. T. 389, N. 13.

10) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{lx}{1-x} \frac{dx}{\sqrt{x}} = \frac{1}{2} - \frac{e^{p\pi}-e^{-p\pi}}{2} Arctg(e^{-p\pi}) - \frac{\pi}{4} e^{-p\pi}$ V. T. 389, N. 11.

11) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{1-\sqrt{x}}{1+\sqrt{x}} \frac{lx}{\sqrt{x}} dx = \frac{\pi}{2} e^{p\pi} + \frac{e^{p\pi}+e^{-p\pi}}{2} l\frac{1-e^{-p\pi}}{1+e^{-p\pi}} - (e^{p\pi}-e^{-p\pi}) Arctg(e^{p\pi})$

V. T. 388, N. 8.

12) $\int \frac{Cos(plx)}{\pi^2+(lx)^2} \frac{x^q-x^{-q}}{1-x} \frac{dx}{\sqrt{x}} = -e^{-p\pi} Sin\,q\pi + \frac{e^{p\pi}+e^{-p\pi}}{2\pi} Cos\,q\pi \,.\, l\frac{e^{p\pi}+2\,Sin\,q\pi+e^{-p\pi}}{e^{p\pi}-2\,Sin\,q\pi+e^{-p\pi}} -$

$- \frac{e^{p\pi}-e^{-p\pi}}{\pi} Sin\,q\pi \,.\, Arctg\left(\frac{2\,Cos\,q\pi}{e^{p\pi}-e^{-p\pi}}\right) \left[q^2 < \frac{1}{4}\right]$ V. T. 389, N. 18.

13) $$\int \frac{Cos(p\,l x)}{\pi^2+(lx)^2}\frac{x^q+x^{-q}}{1-x}\frac{lx}{\sqrt{x}}dx = 1-\frac{\pi}{2}e^{-p\pi}Cos\,q\pi+\frac{e^{p\pi}+e^{-p\pi}}{4}Sin\,q\pi.\,l\frac{e^{p\pi}-2\,Sin\,q\pi+e^{-p\pi}}{e^{p\pi}+2\,Sin\,q\pi+e^{-p\pi}}-$$
$$-\frac{e^{p\pi}-e^{-p\pi}}{2}Cos\,q\pi\,.\,Arctg\left(\frac{2\,Cos\,q\pi}{e^{p\pi}-e^{-p\pi}}\right)\left[q^2 \leqq \frac{1}{4}\right]$$ V. T. 389, N. 17.

1) $\int l(1\pm p\,Cos\,2x)\,.\,Sin\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1]$ (VIII, 398).

2) $\int l(1\pm p\,Cos\,2x)\,.\,Tg\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1]$ (VIII, 398).

3) $\int l(1\pm p\,Cos\,4x)\,.\,Tg\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{1+\sqrt{1-p^2}}{2}\,[p^2<1]$ (VIII, 398).

4) $\int l(q\pm Cos\,2x)\,.\,Sin\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{q+\sqrt{q^2-1}}{2}\,[q^2>1]$ (VIII, 398).

5) $\int l(q\pm Cos\,2x)\,.\,Tg\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{q+\sqrt{q^2-1}}{2}\,[q^2>1]$ (VIII, 398).

6) $\int l(q\pm Cos\,4x)\,.\,Tg\,x\frac{dx}{x}=\frac{\pi}{2}\,l\frac{q+\sqrt{q^2-1}}{2}\,[q^2>1]$ (VIII, 398).

7) $\int l(1\pm p\,Cos\,2x)\frac{Sin\,x}{Cos\,2x}\,\frac{dx}{x}=\frac{\pi}{2}\,Arcsin\,p\,[p^2<1]$ (VIII, 399).

8) $\int l(1\pm p\,Cos\,2x)\frac{Tg\,x}{Cos\,2x}\,\frac{dx}{x}=\frac{\pi}{2}\,Arcsin\,p\,[p^2<1]$ (VIII, 399).

9) $\int l(1\pm p\,Cos\,4x)\frac{Tg\,x}{Cos\,4x}\,\frac{dx}{x}=\frac{\pi}{2}\,Arcsin\,p\,[p^2<1]$ (VIII, 399).

10) $\int l(1+p\,Cos^2x)\,.\,Sin\,x\frac{dx}{x}=\pi\,l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

11) $\int l(1+p\,Cos^2x)\,.\,Sin\,x\,.\,Cos\,x\frac{dx}{x}=\frac{\pi}{4}\,\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}\,l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

12) $\int l(1+p\,Cos^2x)\,.\,Sin^3x\frac{dx}{x}=\frac{\pi}{4}\,\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}\,l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

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F. Alg. rat. fract. à dén. x;
Log. $l(p+Cos x), l(p+Cos^2 x)$; TABLE 409, suite. Lim. 0 et ∞.
Circul. Directe rat.

13) $\int l(1+pCos^2 x) . Sin x . Cos^2 x \frac{dx}{x} = \frac{\pi}{4} \frac{\sqrt{1+p}-1}{\sqrt{1+p}+1} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

14) $\int l(1+p\, Cos^2 x) . Sin^2 x . Tg x \frac{dx}{x} = \frac{\pi}{4} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

15) $\int l(1+p\, Cos^2 x) . Tg x \frac{dx}{x} = \pi l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

16) $\int l(1+p\, Cos^2 2x) . Sin^3 x . Cos x \frac{dx}{x} = \frac{\pi}{16} \frac{1-\sqrt{1+p}}{1+\sqrt{1+p}} + \frac{\pi}{8} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

17) $\int l(1+p\, Cos^2 2x) . Cos^2 2x . Tg x \frac{dx}{x} = \frac{\pi}{4} \frac{\sqrt{1+p}-1}{\sqrt{1+p}+1} + \frac{\pi}{2} l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

18) $\int l(1+p\, Cos^2 2x) . Tg x \frac{dx}{x} = \pi l \frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

F. Alg. rat. fract. à dén. x;
Log. $l(1+2p\, Cos x+p^2)$; TABLE 410. Lim. 0 et ∞.
Circul. Directe rat.

1) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Sin x \frac{dx}{x} = 0\, [p^2<1], = \pi\, lp\, [p^2>1]$ (VIII, 398).

2) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Sin x . Cos x \frac{dx}{x} = \pm \frac{1}{4} p\pi\, [p^2<1], = \pm \frac{1}{4} p\pi + \frac{\pi}{2} lp\, [p^2>1]$
(VIII, 398).

3) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Sin^3 x \frac{dx}{x} = \mp \frac{1}{4} p\pi\, [p^2<1] = \mp \frac{1}{4} p\pi + \frac{\pi}{2} lp\, [p^2>1]$ (VIII, 398).

4) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Sin x . Cos^2 x \frac{dx}{x} = \pm \frac{1}{4} p\pi\, [p^2<1], = \pm \frac{1}{4} p\pi + \frac{\pi}{2} lp\, [p^2>1]$
(VIII, 398).

5) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Sin^2 x . Tg x \frac{dx}{x} = \mp \frac{1}{4} p\pi\, [p^2<1], = \mp \frac{1}{4} p\pi + \frac{\pi}{2} lp\, [p^2>1]$
(VIII, 398).

6) $\int l(1 \pm 2p\, Cos\, 2x+p^2) . Tg x \frac{dx}{x} = 0\, [p^2<1], = \pi\, lp\, [p^2>1]$ (VIII, 398).

7) $\int l(1 \pm 2p\, Cos\, 4x+p^2) . Sin^3 x . Cos x \frac{dx}{x} = \mp \frac{1}{16} p\pi\, [p^2<1] = \mp \frac{1}{16} p\pi + \frac{\pi}{8} lp\, [p^2>1]$
(VIII, 398).

8) $\int l(1\pm 2p\,Cos\,4x+p^2).\,Cos^2\,2x.\,Tg\,x\frac{dx}{x}=\pm\frac{1}{4}p\pi\,[p^2<1],=\pm\frac{1}{4}p\pi+\frac{\pi}{2}\,lp\,[p^2>1]$ (VIII, 398).

9) $\int l(1\pm 2p\,Cos\,4x+p^2).\,Tg\,x\frac{dx}{x}=0\,[p^2<1],=\pi\,lp\,[p^2>1]$ (VIII, 398).

10) $\int l(1\pm 2p\,Cos\,2x+p^2).\,Sin\,x.\,Cos\,2ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 398).

11) $\int l(1\pm 2p\,Cos\,2x+p^2).\,Tg\,x.\,Cos\,2ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 399).

12) $\int l(1\pm 2p\,Cos\,4x+p^2).\,Tg\,x.\,Cos\,4ax\frac{dx}{x}=-\frac{\pi}{2a}(\mp p)^a$ (VIII, 399).

13) $\int l(1-2p\,Sin^2 x.\,Cos\,2x+p^2\,Sin^4 x).\,Sin\,x\frac{dx}{x}=l\frac{p+4}{4}$ Bronwin, L. & E. Phil. Mag. 24, 491.

F. Alg. rat. fract. à dén. x;
Log. d'autre forme; TABLE 411. Lim. 0 et ∞.
Circ. Directe rat.

1) $\int l(px).\,Sin\,qx\frac{dx}{x}=\frac{\pi}{2}\left(l\frac{p}{q}-\mathrm{A}\right)$ (VIII, 457).

2) $\int l\,Sin\,rx.\,Sin\,x\frac{dx}{x}=-\frac{\pi}{2}\,l2$ (H, 15).

3) $\int l\,Cos\,rx.\,Sin\,x\frac{dx}{x}=-\frac{\pi}{2}\,l2$ (H, 15).

4) $\int l\,Tg\,rx.\,Sin\,x\frac{dx}{x}=0$ (H, 15).

5) $\int lx.\,Sin\,qx\frac{dx}{x^{1-p}}=\frac{1}{q^p}\left\{Sin\frac{1}{2}p\pi.\,Z'(p)-Sin\frac{1}{2}p\pi.\,lq+\frac{\pi}{2}\,Cos\frac{1}{2}p\pi\right\}\Gamma(p)\,[p<1]$ (IV, 534).

6) $\int lx.\,Cos\,qx\frac{dx}{x^{1-p}}=\frac{1}{q^p}\left\{Cos\frac{1}{2}p\pi.\,Z'(p)-Cos\frac{1}{2}p\pi.\,lq-\frac{\pi}{2}\,Sin\frac{1}{2}p\pi\right\}\Gamma(p)\,[p<1]$ (IV, 534).

7) $\int lx.\,Sin\,px.\,Cos\,qx\frac{dx}{x}=-\frac{\pi}{2}\left\{\mathrm{A}+\frac{1}{2}l(p^2-q^2)\right\}[p>q],=\frac{1}{4}\,l\frac{q-p}{q+p}\,[p<q]$

Schlömilch, Schl. Z. 7, 262.

8) $\int l(1+x).\,Cos\,px\frac{dx}{x}=\frac{1}{2}\left\{Ci(p)\right\}^2+\frac{1}{2}\left\{\frac{\pi}{2}-Si(p)\right\}^2$ Enneper, Schl. Z. 6, 405.

9) $\int l(1+x^2).\,Sin\,qx\frac{dx}{x}=-\pi\,li(e^{-q})$ (IV, 533).

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10) $\int l(q^2+x^2).\left\{l(1+p^2\,Tg^2\,r\,x)-\frac{2p^2\,x\,Tg\,r\,x}{Cos^2\,r\,x+p^2\,Sin^2\,r\,x}\right\}\frac{dx}{x^2}=\frac{2\pi}{q}\left\{1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right\}$

V. T. 421, N. 1.

11) $\int l(1+p\,Sin^2\,x).Sin\,x\frac{dx}{x}=\pi\,l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

12) $\int l(1+p\,Sin^2\,x).Sin\,x.Cos\,x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

13) $\int l(1+p\,Sin^2\,x).Sin^3\,x\frac{dx}{x}=\frac{\pi}{4}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

14) $\int l(1+p\,Sin^2\,x).Sin\,x.Cos^2\,x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

15) $\int l(1+p\,Sin^2 x).Sin^2\,x.Tg\,x\frac{dx}{x}=\frac{\pi}{4}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

16) $\int l(1+p\,Sin^2 x).Tg\,x\frac{dx}{x}=\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

17) $\int l(1+p\,Sin^2\,2\,x).Sin^3\,x.Cos\,x\frac{dx}{x}=\frac{\pi}{16}\frac{\sqrt{1+p}-1}{\sqrt{1+p}+1}+\frac{\pi}{8}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

18) $\int l(1+p^2\,Sin^2\,2\,x).Cos^2\,2\,x.Tg\,x\frac{dx}{x}=\frac{\pi}{4}\frac{1-\sqrt{1+p}}{1+\sqrt{1+p}}+\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

19) $\int l(1+p\,Sin^2\,2\,x).Tg\,x\frac{dx}{x}=\frac{\pi}{2}l\frac{1+\sqrt{1+p}}{2}$ (VIII, 397).

20) $\int l(1+p^2\,Tg^2\,x).l(1+q^2\,Cot^2\,x)\frac{dx}{x\,Sin\,x}=2\pi\frac{1+pq}{q}l(1+pq)-2p\pi$ (VIII, 399).

21) $\int l(1+p^2\,Tg^2\,x).l(1+q^2\,Cot^2\,x)\frac{dx}{x\,Sin\,x.Cos\,x}=2\pi\frac{1+pq}{q}l(1+pq)-2p\pi$ (VIII, 399).

22) $\int l(1+p^2\,Tg^2\,x).l(1+q^2\,Cot^2\,x)\frac{Sin\,x}{x\,Cos^2\,x}dx=2\pi\frac{1+pq}{p}l(1+pq)-2q\pi$ (VIII, 399).

23) $\int l(1+p^2\,Tg^2\,x).l(1+q^2\,Cot^2\,x)\frac{Sin\,x}{x\,Cos^3\,x}dx=2\pi\frac{1+pq}{p}l(1+pq)-2q\pi$ (VIII, 399).

24) $\int l(1+p^2 Tg^2\,2\,x).l(1+q^2\,Cot^2\,2\,x)\frac{dx}{x\,Sinx.Cos^3 x}=8\pi\frac{1+pq}{p}l(1+pq)-8p\pi$ (VIII, 399).

25) $\int l(1+p^2\,Tg^2\,2\,x).l(1+q^2\,Cot^2\,2\,x)\frac{Tg\,x}{x\,Cos^2\,2\,x}dx=2\pi\frac{1+pq}{q}l(1+pq)-2q\pi$ (VIII, 399).

1) $\int l(1-p^2 Sin^2 x) . Sin\, x . \sqrt{1-p^2 \, Sin^2 x} \, \frac{dx}{x} = (2-p^2) \mathrm{F}'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$

2) $\int l(1-p^2 Sin^2 x) . Tg\, x . \sqrt{1-p^2 \, Sin^2 x} \, \frac{dx}{x} = (2-p^2) \mathrm{F}'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$

3) $\int l(1-p^2 Sin^2 2x) . Tg\, x . \sqrt{1-p^2 \, Sin^2 2x} \, \frac{dx}{x} = (2-p^2) \mathrm{F}'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$

Sur 1) à 3) voyez VIII, 399.

4) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . \mathrm{F}'(p)$ (VIII, 400).

5) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\}$ (VIII, 400).

6) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} \mathrm{F}'(p) +$

$+ \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$ (VIII, 400).

7) $\int l(1-p^2 \, Sin^2 x) \frac{Sin\, x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$ (VIII, 400).

8) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} \mathrm{F}'(p) +$

$+ \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$ (VIII, 400).

9) $\int l(1-p^2 \, Sin^2 x) \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . \mathrm{F}'(p)$ (VIII, 400).

10) $\int l(1-p^2 \, Sin^2 2x) \frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{4p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} \mathrm{F}'(p) +$

$+ \frac{1}{4p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$ (VIII, 400).

11) $\int l(1-p^2 \, Sin^2 2x) \frac{Cos^2 2x . Tg\, x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p) -$

$- \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p)$ (VIII, 400).

12) $\int l(1-p^2 Sin^2 2x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . \mathrm{F}'(p)$ (VIII, 400).

13) $\int l(1-p^2 Sin^2 x) \frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2)\mathrm{F}'(p) + \{4 + l(1-p^2)\}\mathrm{E}'(p)]$ (VIII, 402).

14) $\int l(1-p^2 Sin^2 x) \frac{Sin\,x . Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} \mathrm{F}'(p) - \{4 + l(1-p^2)\} \mathrm{E}'(p)]$ (VIII, 402).

15) $\int l(1-p^2 Sin^2 x) \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p)\right]$ (VIII, 402).

16) $\int l(1-p^2 Sin^2 x) \frac{Sin\,x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} \mathrm{F}'(p) - \{4 + l(1-p^2)\} \mathrm{E}'(p)]$ (VIII, 402).

17) $\int l(1-p^2 Sin^2 x) \frac{Sin^2 x . Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p)\right]$ (VIII, 402).

18) $\int l(1-p^2 Sin^2 x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2)\mathrm{F}'(p) + \{4 + l(1-p^2)\}\mathrm{E}'(p)]$ (VIII, 402).

19) $\int l(1-p^2 Sin^2 2x) \frac{Sin^3 x . Cos\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{4p^2(1-p^2)} \left[\left\{2 + \frac{1}{2} l(1-p^2)\right\} \mathrm{E}'(p) - \left\{(2-p^2) + \frac{1}{2}(1-p^2) l(1-p^2)\right\} \mathrm{F}'(p)\right]$ (VIII, 402).

20) $\int l(1-p^2 Sin^2 2x) \frac{Cos^2 2x . Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2p^2} [\{2(2-p^2) + l(1-p^2)\} \mathrm{F}'(p) - \{4 + l(1-p^2)\} \mathrm{E}'(p)]$ (VIII, 402).

21) $\int l(1-p^2 Sin^2 2x) \frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2(1-p^2)} [2(p^2-2)\mathrm{F}'(p) + \{4 + l(1-p^2)\}\mathrm{E}'(p)]$ (VIII, 402).

F. Alg. rat. fract. à dén. x;
Log. $l(1+q\,Sin^2 x)$; TABLE 413. Lim. 0 et ∞
Circ. Dir. irrat. $\sqrt{1-p^2\,Sin^2 x}$; $[p^2<1]$.

1) $\int l(1+p\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

2) $\int l(1+p\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

3) $\int l(1+p\,Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

4) $\int l(1-p\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

5) $\int l(1-p\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

6) $\int l(1-p\,Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.F'(p)-\frac{\pi}{8}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

7) $\int l(1-p^2\,Sin^4 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

8) $\int l(1-p^2\,Sin^4 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

9) $\int l(1-p^2\,Sin^4 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{4(1-p^2)}{p}\right\}.F'(p)-\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$ (VIII, 401).

10) $\int l(1-p^2\,Sin^2\lambda\,.\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

11) $\int l(1-p^2\,Sin^2\lambda\,.\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

12) $\int l(1-p^2\,Sin^2\lambda.Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 2x}}\frac{dx}{x}=E'(p).\{F(p,\lambda)\}^2-2F'(p).T(p,\lambda)$ (VIII, 403).

13) $\int l(1+Cot^2\lambda\,.\,Sin^2 x)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).\,l\,Sin\,\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).\,lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$
(VIII, 403).

14) $\int l(1+Cot^2\lambda\,.\,Sin^2 x)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2 x}}\frac{dx}{x}=\pi F\{\sqrt{1-p^2},\lambda\}-2F'(p).T\{\sqrt{1-p^2},\lambda\}-$

$-2F'(p).\,l\,Sin\,\lambda-\frac{\pi}{2}F'\{\sqrt{1-p^2}\}-F'(p).\,lp-\{E'(p)-F'(p)\}[F\{\sqrt{1-p^2},\lambda\}]^2$
(VIII, 403).

15) $$\int l(1+Cot^2\lambda . Sin^2 2x)\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}-$$
$$-2\,\mathrm{F}'(p).\,l\,Sin\,\lambda-\frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\}-\mathrm{F}'(p).\,lp-\{\mathrm{E}'(p)-\mathrm{F}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$$
(VIII, 404).

16) $$\int l[1-\{1-(1-p^2)Sin^2\lambda\}\,Sin^2 x]\frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$$
$$-2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p).l\frac{1-p^2}{p^2}-\frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\}+$$
$$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$$ (VIII, 404).

17) $$\int l[1-\{1-(1-p^2)Sin^2\lambda\}\,Sin^2 x]\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$$
$$-2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p).l\frac{1-p^2}{p^2}-\frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\}+$$
$$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$$ (VIII, 404).

18) $$\int l[1-\{1-(1-p^2)Sin^2\lambda\}\,Sin^2 2x]\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$$
$$-2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p).l\frac{1-p^2}{p^2}-\frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\}+$$
$$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$$ (VIII, 404).

19) $$\int l\{Sin^2 x.\sqrt{1-p^2}+Cos^2 x\}\frac{Sin\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\mathrm{F}'(p)$$ (VIII, 405).

20) $$\int l\{Sin^2 x.\sqrt{1-p^2}+Cos^2 x\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\mathrm{F}'(p)$$ (VIII, 405).

21) $$\int l\{Sin^2 2x.\sqrt{1-p^2}+Cos^2 2x\}\frac{Tg\,x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{1}{2}l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\mathrm{F}'(p)$$ (VIII, 405).

F. Alg. rat. fract. à dén. x;
Log. $l(1-p^2 \, Cos^2 x)$; TABLE 414. Lim. 0 et ∞.
Circ. Dir. irrat. $\sqrt{1-p^2 \, Cos^2 x}$; $[p^2 < 1]$.

1) $\int l(1-p^2 \, Cos\, x) . Sin\, x . \sqrt{1-p^2 \, Cos^2 x} \, \frac{dx}{x} = (2-p^2) \, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 399).

2) $\int l(1-p^2 \, Cos^2 x) . Tg\, x . \sqrt{1-p^2 \, Cos^2 x} \, \frac{dx}{x} = (2-p^2) \, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

3) $\int l(1-p^2 \, Cos^2 \, 2x) . Tg\, x . \sqrt{1-p^2 \, Cos^2 \, 2x} \, \frac{dx}{x} = (2-p^2) \, F'(p) - \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

4) $\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 401).

5) $\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) + \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

6) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^3 x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2} (1-p^2) \, l(1-p^2)\right\} F'(p) - \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

7) $\int l(1-p^2 \, Cos^2 x) \frac{Sin\, x . Cos^2 x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left[\left\{(p^2-2) + \frac{1}{2} l(1-p^2)\right\} F'(p) + \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)\right]$ (VIII, 400).

8) $\int l(1-p^2 \, Cos^2 x) \frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{p^2} \left\{(2-p^2) - \frac{1}{2} (1-p^2) \, l(1-p^2)\right\} F'(p) - \frac{1}{p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

9) $\int l(1-p^2 \, Cos^2 x) \frac{Tg\, x}{\sqrt{1-p^2 \, Cos^2 x}} \frac{dx}{x} = \frac{1}{2} l(1-p^2) . F'(p)$ (VIII, 401).

10) $\int l(1-p^2 \, Cos^2 \, 2x) \frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 \, Cos^2 \, 2x}} \frac{dx}{x} = \frac{1}{4p^2} \left\{(2-p^2) - \frac{1}{2} (1-p^2) \, l(1-p^2)\right\} F'(p) - \frac{1}{4p^2} \left\{2 - \frac{1}{2} l(1-p^2)\right\} E'(p)$ (VIII, 400).

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11) $$\int l(1-p^2\,Cos^2\,2x)\,\frac{Cos^2\,2x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2\,2x}}\,\frac{dx}{x}=\frac{1}{p^2}\left\{(p^2-2)+\frac{1}{2}\,l(1-p^2)\right\}F'(p)+$$
$$+\frac{1}{p^2}\left\{2-\frac{1}{2}\,l(1-p^2)\right\}E'(p)$$ (VIII, 401).

12) $$\int l(1-p^2\,Cos^2 2x)\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2\,2x}}\,\frac{dx}{x}=\frac{1}{2}\,l(1-p^2)\,.\,F'(p)$$ (VIII, 401).

13) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{2(1-p^2)}\left[2(p^2-2)F'(p)+\{4+l(1-p^2)\}E'(p)\right]$$

14) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{p^2(1-p^2)}\left[\left\{2+\frac{1}{2}\,l(1-p^2)\right\}E'(p)-\right.$$
$$\left.-\left\{(2-p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)\right]$$

15) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Sin^3\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{2p^2}\left[\{2(2-p^2)+l(1-p^2)\}F'(p)-\right.$$
$$\left.-\{4+l(1-p^2)\}E'(p)\right]$$

16) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x\,.\,Cos^2\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{p^2(1-p^2)}\left[\left\{2+\frac{1}{2}\,l(1-p^2)\right\}E'(p)-\right.$$
$$\left.-\left\{(2-p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)\right]$$

17) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Sin^2\,x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{2p^2}\left[\{2(2-p^2)+l(1-p^2)\}F'(p)-\right.$$
$$\left.-\{4+l(1-p^2)\}E'(p)\right]$$

18) $$\int l(1-p^2\,Cos^2\,x)\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2\,x}^3}\,\frac{dx}{x}=\frac{1}{2(1-p^2)}\left[2(p^2-2)F'(p)+\{4+l(1-p^2)\}E'(p)\right]$$

19) $$\int l(1-p^2\,Cos^2\,2x)\,\frac{Sin\,x\,.\,Cos^3\,x}{\sqrt{1-p^2\,Cos^2\,2x}^3}\,\frac{dx}{x}=\frac{1}{8p^2}\left[\{2(2-p^2)+l(1-p^2)\}F'(p)-\right.$$
$$\left.-\{4+l(1-p^2)\}E'(p)\right]$$

20) $$\int l(1-p^2\,Cos^2\,2x)\,\frac{Cos^2\,2x\,.\,Tg\,x}{\sqrt{1-p^2\,Cos^2\,2x}^3}\,\frac{dx}{x}=\frac{1}{p^2(1-p^2)}\left[\left\{2+\frac{1}{2}\,l(1-p^2)\right\}E'(p)-\right.$$
$$\left.-\left\{(2-p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)\right]$$

21) $$\int l(1-p^2\,Cos^2\,2x)\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2\,2x}^3}\,\frac{dx}{x}=\frac{1}{2(1-p^2)}\left[2(p^2-2)F'(p)+\{4+l(1-p^2)\}E'(p)\right]$$

Sur 13) à 21) voyez VIII, 403.

1) $\int l(1+p\ Cos^2 x)\ \frac{Sin\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$ (VIII, 401).

2) $\int l(1+p\ Cos^2 x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$ (VIII, 401).

3) $\int l(1+p\ Cos^2 2x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 2x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1+p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$

4) $\int l(1-p\ Cos^2 x)\ \frac{Sin\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$

5) $\int l(1-p\ Cos^2 x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$

6) $\int l(1-p\ Cos^2 2x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 2x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{2(1-p)}{\sqrt{p}}\right\}.\mathrm{F}'(p) - \frac{\pi}{8}\mathrm{F}'\{\sqrt{1-p^2}\}$

7) $\int l(1-p^2\ Cos^4 x)\ \frac{Sin\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{4(1-p^2)}{p}\right\}.\mathrm{F}'(p) - \frac{\pi}{4}\mathrm{F}'\{\sqrt{1-p^2}\}$

8) $\int l(1-p^2\ Cos^4 x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{4(1-p^2)}{p}\right\}.\mathrm{F}'(p) - \frac{\pi}{4}\mathrm{F}'\{\sqrt{1-p^2}\}$

9) $\int l(1-p^2\ Cos^4 2x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 2x}}\ \frac{dx}{x} = \frac{1}{2}\, l\left\{\frac{4(1-p^2)}{p}\right\}.\mathrm{F}'(p) - \frac{\pi}{4}\mathrm{F}'\{\sqrt{1-p^2}\}$

Sur 3) à 9) voyez VIII, 402.

10) $\int l(1-p^2\ Sin^2\lambda\,.\,Cos^2 x)\ \frac{Sin\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \mathrm{E}'(p).\{\mathrm{F}(p,\lambda)\}^2 - 2\,\mathrm{F}'(p).\Upsilon(p,\lambda)$ (VIII, 404).

11) $\int l(1-p^2\ Sin^2\lambda\,.\,Cos^2 x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \mathrm{E}'(p).\{\mathrm{F}(p,\lambda)\}^2 - 2\,\mathrm{F}'(p).\Upsilon(p,\lambda)$ (VIII, 404).

12) $\int l(1-p^2\ Sin^2\lambda\,.\,Cos^2 2x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 2x}}\ \frac{dx}{x} = \mathrm{E}'(p).\{\mathrm{F}(p,\lambda)\}^2 - 2\,\mathrm{F}'(p).\Upsilon(p,\lambda)$ (VIII, 404).

13) $\int l(1+Cot^2\lambda\,.\,Cos^2 x)\ \frac{Sin\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\} - 2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\} -$
$- 2\,\mathrm{F}'(p).\, l\,Sin\,\lambda - \frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\} - \mathrm{F}'(p).lp - \{\mathrm{E}'(p)-\mathrm{F}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

14) $\int l(1+Cot^2\lambda\,.\,Cos^2 x)\ \frac{Tg\, x}{\sqrt{1-p^2\ Cos^2 x}}\ \frac{dx}{x} = \pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\} - 2\,\mathrm{F}'(p).\Upsilon\{\sqrt{1-p^2},\lambda\} -$
$- 2\,\mathrm{F}'(p).\, l\,Sin\,\lambda - \frac{\pi}{2}\mathrm{F}'\{\sqrt{1-p^2}\} - \mathrm{F}'(p).lp - \{\mathrm{E}'(p)-\mathrm{F}'(p)\}[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

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F. Alg. rat. fract. à dén. x;
Log. $l(1+q\,Cos^2 x)$;
Circ. Dir. irrat. $\sqrt{1-p^2\,Cos^2 x}$; $[p^2<1]$.

TABLE 415, suite. Lim. 0 et ∞.

15) $\int l(1+Cot^2\lambda\,.\,Cos^2 2x)\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,l\,Sin\,\lambda-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}-\mathrm{F}'(p)\,.\,l\,p-\{\mathrm{E}'(p)-\mathrm{F}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

16) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 x]\,\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2 x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\,\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 404).

17) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 x]\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\,\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 405).

18) $\int l[1-\{1-(1-p^2)\,Sin^2\lambda\}\,Cos^2 2x]\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\{\sqrt{1-p^2},\lambda\}-$
$-2\,\mathrm{F}'(p)\,.\,\Upsilon\{\sqrt{1-p^2},\lambda\}+\frac{1}{2}\mathrm{F}'(p)\,.\,l\,\frac{1-p^2}{p^2}-\frac{\pi}{2}\,\mathrm{F}'\{\sqrt{1-p^2}\}+$
$+\{\mathrm{F}'(p)-\mathrm{E}'(p)\}\,[\mathrm{F}\{\sqrt{1-p^2},\lambda\}]^2$ (VIII, 405).

19) $\int l\{Sin^2 x+Cos^2 x\,.\,\sqrt{1-p^2}\}\,\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2 x}}\,\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

20) $\int l\{Sin^2 x+Cos^2 x\,.\,\sqrt{1-p^2}\}\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}}\,\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

21) $\int l\{Sin^2 2x+Cos^2 2x\,.\,\sqrt{1-p^2}\}\,\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}}\,\frac{dx}{x}=\frac{1}{2}\,l\left\{\frac{2\sqrt[4]{1-p^2}^{\,3}}{1+\sqrt{1-p^2}}\right\}.\,\mathrm{F}'(p)$ (VIII, 405).

F. Alg. rat. fract. à dén. x;
Log. de fraction;
Circ. Directe.

TABLE 416. Lim. 0 et ∞.

1) $\int l\left(\frac{1+Sin\,p\,x}{1-Sin\,p\,x}\right)\frac{dx}{x}=\frac{1}{2}\pi^2$ (VIII, 385*).

2) $\int l\left(\frac{1+Tg\,p\,x}{1-Tg\,p\,x}\right)^2\frac{dx}{x}=\frac{1}{2}\pi^2$ (VIII, 385*).

3) $\int l\left(\frac{1+2p\,Cos\,a\,x+p^2}{1+2p\,Cos\,b\,x+p^2}\right)\frac{dx}{x}=l(1+p)\,.\,l\,\frac{b^2}{a^2}\,[p^2\leqq 1],=l\,\frac{1+p}{p}\,.\,l\,\frac{b^2}{a^2}\,[p^2\geqq 1]$ (VIII, 273).

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4) $\int l\left(\frac{1+2p\,Sin\,x+p^2}{1-2p\,Sin\,x+p^2}\right)\frac{dx}{x}=2\pi\,Arctg\,p$ Bronwin, Mathem. 1. 197.

5) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2\,x}}{1-q\sqrt{1-p^2\,Sin^2\,x}}\right)\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2\,x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 405).

6) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2\,x}}{1-q\sqrt{1-p^2\,Sin^2\,x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2\,x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 405).

7) $\int l\left(\frac{1+q\sqrt{1-p^2\,Sin^2\,2x}}{1-q\sqrt{1-p^2\,Sin^2\,2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Sin^2\,2x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 405).

8) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2\,x}}{1-q\sqrt{1-p^2\,Cos^2\,x}}\right)\frac{Sin\,x}{\sqrt{1-p^2\,Cos^2\,x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 406).

9) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2\,x}}{1-q\sqrt{1-p^2\,Cos^2\,x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2\,x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 406).

10) $\int l\left(\frac{1+q\sqrt{1-p^2\,Cos^2\,2x}}{1-q\sqrt{1-p^2\,Cos^2\,2x}}\right)\frac{Tg\,x}{\sqrt{1-p^2\,Cos^2\,2x}}\,\frac{dx}{x}=\pi\,\mathrm{F}\left\{\sqrt{1-p^2},Arcsin\,q\right\}$ (VIII, 406).

F. Alg. rat. fract. à dén. q^2+x^2;
Logarithmique de
Circulaire Directe.

TABLE 417.

Lim. 0 et ∞.

1) $\int l\,Sin^2\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\,\frac{1-e^{-2pq}}{2}$ (VIII, 419).

2) $\int l\,Cos^2 px\,\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\,\frac{1+e^{-2pq}}{2}$ (VIII, 419).

3) $\int l\,Tg^2\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\,\frac{e^{2pq}-1}{e^{2pq}+1}$ (VIII, 419).

4) $\int l\,Cot^2\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l\,\frac{e^{pq}+e^{-pq}}{e^{pq}-e^{-pq}}$ V. T. 417, N. 1, 2.

5) $\int l\,Sin\,rx\,.\,Tg\,2rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\,l\,\frac{2}{1-e^{-2qr}}$ (H, 151).

6) $\int l\,Sin\,rx\,.\,Cot\,2rx\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\,l\,\frac{1-e^{-2qr}}{2}$ (H, 151).

7) $\int \frac{l\,Sin\,r\,x}{Sin\,2\,r\,x} \cdot \frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{2qr}-e^{-2qr}}\, l\frac{1-e^{-2qr}}{2}$ (H, 151).

8) $\int l\left(\frac{1}{2}\,Sin\,r\,x\right).Tg\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1-e^{-2qr}}{1+e^{-2qr}}\, l\frac{4}{1-e^{-2qr}}$ (H, 152).

9) $\int l\left(\frac{1}{2}\,Sin\,r\,x\right).Cot\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1+e^{-2qr}}{1-e^{-2qr}}\, l\frac{1-e^{-2qr}}{4}$ (H, 152).

10) $\int \frac{l(\frac{1}{2}\,Sin\,r\,x)}{Sin\,r\,x}\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{qr}-e^{-qr}}\, l\frac{1-e^{-2qr}}{4}$ (H, 152).

11) $\int l\,Cos\,r\,x\,.\,Tg\,2\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\, l\frac{2}{1+e^{-2qr}}$ (H, 151).

12) $\int l\,Cos\,r\,x\,.\,Cot\,2\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\, l\frac{1+e^{-2qr}}{2}$ (H, 151).

13) $\int \frac{l\,Cos\,r\,x}{Sin\,2\,r\,x}\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{2qr}-e^{-2qr}}\, l\frac{1+e^{-2qr}}{2}$ (H, 151).

14) $\int l\,Tg\,r\,x\,.\,Tg\,2\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1-e^{-4qr}}{1+e^{-4qr}}\, l\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}$ (H, 152).

15) $\int l\,Tg\,r\,x\,.\,Cot\,2\,r\,x\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2}\,\frac{1+e^{-4qr}}{1-e^{-4qr}}\, l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (H, 152).

16) $\int \frac{l\,Tg\,r\,x}{Sin\,2\,r\,x}\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{e^{2qr}-e^{2qr}}\, l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (H, 152).

F. Alg. rat. fract à dén. q^2-x^2;
Logarithmique de Circulaire Directe. TABLE 418. Lim. 0 et ∞.

1) $\int l\,Sin^2\,p\,x\frac{dx}{q^2-x^2} = -\frac{1}{2q}\pi^2+p\pi$ (VIII, 509). 2) $\int l\,Cos^2\,p\,x\frac{dx}{q^2-x^2} = p\pi$ (VIII, 509).

3) $\int l\,Tg^2\,p\,x\frac{dx}{q^2-x^2} = -\frac{1}{2q}\pi^2$ (VIII, 509).

4) $\int l\,Sin\,r\,x\,.\,Tg\,2\,r\,x\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left(q\,r-\frac{1}{2}\pi\right)Tg\,2\,q\,r$ (H, 152).

5) $\int l\,Sin\,r\,x\,.\,Cot\,2\,r\,x\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left(q\,r-\frac{1}{2}\pi\right)Cot\,2\,q\,r$ (H, 152).

6) $\int \frac{l\,Sin\,r\,x}{Sin\,2\,r\,x}\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\,\frac{q\,r-\frac{1}{2}\pi}{Sin\,2\,q\,r}$ (H, 152).

7) $\int l\left(\frac{1}{2}\,Sin\,r\,x\right).Tg\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\left(q\,r-\frac{1}{2}\pi\right)Tg\,q\,r$ (H, 152).

8) $\int l\left(\frac{1}{2}\,Sin\,r\,x\right).Cot\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\left(q\,r-\frac{1}{2}\pi\right)Cot\,q\,r$ (H, 152).

9) $\int \frac{l(\frac{1}{2}\,Sin\,r\,x)}{Sin\,r\,x}\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\,\frac{q\,r-\frac{1}{2}\pi}{Sin\,q\,r}$ (H, 153).

10) $\int l\,Cos\,r\,x\,.\,Tg\,2\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\,q\,r\,Tg\,2\,q\,r$ (H, 151).

11) $\int l\,Cos\,r\,x\,.\,Cot\,2\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\,q\,r\,Cot\,2\,q\,r$ (H, 151).

12) $\int \frac{l\,Cos\,r\,x}{Sin\,2\,r\,x}\,\frac{x\,d\,x}{q^2-x^2}=\frac{\pi}{2}\,\frac{q\,r}{Sin\,2\,q\,r}$ (H, 151).

13) $\int l\,Tg\,r\,x\,.\,Tg\,2\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=-\frac{1}{4}\pi^2\,Tg\,2\,q\,r$ (H, 152).

14) $\int l\,Tg\,r\,x\,.\,Cot\,2\,r\,x\,\frac{x\,d\,x}{q^2-x^2}=-\frac{1}{4}\pi^2\,Cot\,2\,q\,r$ (H, 152).

15) $\int \frac{l\,Tg\,r\,x}{Sin\,2\,r\,x}\,\frac{x\,d\,x}{q^2-x^2}=-\frac{1}{4}\pi^2\,Cosec\,2\,q\,r$ (H, 152).

F. Alg. rat. fract. à dén. $q^4\pm x^4$;
Logarithmique de Circulaire Directe. TABLE 419. Lim. 0 et ∞.

1) $\int l\,Sin\,p\,x\,\frac{d\,x}{q^4+x^4}=\frac{\pi}{2\,q^3\sqrt{2}}\,l\left\{\frac{1}{2}\sqrt{1-2\,e^{-p\,q\sqrt{2}}\,Cos\,(p\,q\sqrt{2})+e^{-2\,p\,q\sqrt{2}}}\right\}-$
$-\frac{\pi}{2\,q^3\sqrt{2}}\,Arcsin\left\{\frac{e^{-p\,q\sqrt{2}}\,Sin\,(p\,q\sqrt{2})}{\sqrt{1-2\,e^{-p\,q\sqrt{2}}\,Cos\,(p\,q\sqrt{2})+e^{-2\,p\,q\sqrt{2}}}}\right\}$ (IV, 537).

2) $\int l\,Cos\,p\,x\,\frac{d\,x}{q^4+x^4}=\frac{\pi}{3\,q^3\sqrt{2}}\,l\left\{\frac{1}{2}\sqrt{1+2\,e^{-p\,q\sqrt{2}}\,Cos\,(p\,q\sqrt{2})+e^{-2\,p\,q\sqrt{2}}}\right\}+$
$+\frac{\pi}{2\,q^3\sqrt{2}}\,Arcsin\left\{\frac{e^{-p\,q\sqrt{2}}\,Sin\,(p\,q\sqrt{2})}{\sqrt{1+2\,e^{-p\,q\sqrt{2}}\,Cos\,(p\,q\sqrt{2})+e^{-2\,p\,q\sqrt{2}}}}\right\}$ (IV, 537).

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3) $$\int l\,Tg\,p\,x\,\frac{dx}{q^4+x^4}=\frac{\pi}{4q^3\sqrt{2}}\,l\,\frac{1-2e^{-pq\sqrt{2}}\,Cos\,(pq\sqrt{2})+e^{-2pq\sqrt{2}}}{1+2e^{-pq\sqrt{2}}\,Cos\,(pq\sqrt{2})+e^{-2pq\sqrt{2}}}-$$
$$-\frac{\pi}{2q^3\sqrt{2}}\,Arcsin\left\{\frac{2e^{-pq\sqrt{2}}\,Sin\,(pq\sqrt{2})}{\sqrt{1-2e^{-2pq\sqrt{2}}\,Cos(2pq\sqrt{2})+e^{-4pq\sqrt{2}}}}\right\}$$ V. T. 419, N. 1, 2.

4) $$\int l\,Sin\,r\,x\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{1-2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}-Arctg\,\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right\}$$ (H, 62).

5) $$\int l\,Sin\,r\,x\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{1-2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}+Arctg\,\frac{Sin\,2qr}{e^{2qr}-Cos\,2qr}\right\}$$ (H, 62).

6) $$\int l\,Cos\,r\,x\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{1+2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}+Arctg\,\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right\}$$ (H, 60).

7) $$\int l\,Cos\,r\,x\,\frac{x^2\,dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{1+2e^{-2qr}\,Cos\,2qr+e^{-4qr}}{2}-Arctg\,\frac{Sin\,2qr}{e^{2qr}+Cos\,2qr}\right\}$$ (H, 60).

8) $$\int l\,Tg\,r\,x\,\frac{dx}{4q^4+x^4}=\frac{\pi}{8q^3}\left\{\frac{1}{2}\,l\,\frac{e^{2qr}-2\,Cos\,2qr+e^{-2qr}}{e^{2qr}+2\,Cos\,2qr+e^{-2qr}}+Arctg\,\frac{2\,Sin\,2qr}{e^{2qr}-e^{-2qr}}\right\}$$ (H, 62).

9) $$\int l\,Tg\,r\,x\,\frac{dx}{4q^4+x^4}=\frac{\pi}{4q}\left\{\frac{1}{2}\,l\,\frac{e^{2qr}-2\,Cos\,2qr+e^{-2qr}}{e^{2qr}+2\,Cos\,2qr+e^{-2qr}}-Arctg\,\frac{2\,Sin\,2qr}{e^{2qr}-e^{-2qr}}\right\}$$ (H, 62).

10) $$\int l\,Sin\,r\,x\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(qr-\frac{1}{2}\pi+l\,\frac{1-e^{-2qr}}{2}\right)$$ (H, 111).

11) $$\int l\,Sin\,r\,x\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(qr-\frac{1}{2}\pi-l\,\frac{1-e^{-2qr}}{2}\right)$$ (H, 111).

12) $$\int l\,Cos\,r\,x\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(l\,\frac{1+e^{-2qr}}{2}+qr\right)$$ (H, 110).

13) $$\int l\,Cos\,r\,x\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(qr-l\,\frac{1+e^{-2qr}}{2}\right)$$ (H, 110).

14) $$\int l\,Tg\,r\,x\,\frac{dx}{q^4-x^4}=\frac{\pi}{4q^3}\left(l\,\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}-\frac{1}{2}\pi\right)$$ (H, 111).

15) $$\int l\,Tg\,r\,x\,\frac{x^2\,dx}{q^4-x^4}=\frac{\pi}{4q}\left(l\,\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}-\frac{1}{2}\pi\right)$$ (H, 111).

F. Alg. rat. fract. à autre dén. bin.; Logarithmique de Circulaire Directe monôme. — TABLE 420. — Lim. 0 et ∞.

1) $\int l\,Sin\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q^3}(4qr-\pi)$ (H, 111). 2) $\int l\,Sin\,r\,x \frac{x^2\,dx}{(q^2-x^2)^2} = \frac{\pi^2}{8q}$ (H, 111).

3) $\int l\,Cos\,r\,x \frac{dx}{(q^2-x^2)^2} = 0$ (H, 110). 4) $\int l\,Cos\,r\,x \frac{x^2\,dx}{(q^2-x^2)^2} = -\frac{1}{2}\pi r$ (H, 111).

5) $\int l\,Tg\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q^3}(4qr-\pi)$ (H, 111). 6) $\int l\,Tg\,r\,x \frac{dx}{(q^2-x^2)^2} = \frac{\pi}{8q}(\pi+4qr)$ (H, 111).

F. Alg. rat. fract. à dén. binôme; Logarithmique de Circulaire Directe polynôme. — TABLE 421. — Lim. 0 et ∞.

1) $\int l(1+p^2\,Tg^2\,r\,x)\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 418*).

2) $\int l(1+p^2\,Cot^2\,r\,x)\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 418*).

3) $\int l(1+p^2\,Tg^2\,r\,x)\frac{Cos\,r\,x}{q^2+x^2}dx = \frac{\pi}{q}\left\{\frac{e^{qr}+e^{-qr}}{2}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right) - \frac{e^{qr}-e^{-qr}}{2}\,l(1+p)\right\}$ (VIII, 419*).

4) $\int l(1+p^2\,Tg^2\,r\,x)\frac{x\,Cot\,r\,x}{q^2+x^2}dx = \pi\left\{\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right) - l(1+p)\right\}$ (VIII, 419*).

5) $\int l(1+p^2\,Tg^2\,r\,x)\frac{x}{Sin\,r\,x}\,\frac{dx}{q^2+x^2} = \frac{2\pi}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 419*).

6) $\int l(1+p^2\,Cot^2\,r\,x)\frac{x}{Sin\,r\,x}\,\frac{dx}{q^2+x^2} = \frac{2\pi}{e^{qr}-e^{-qr}}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 419*).

7) $\int l(1+p^2\,Tg^2\,r\,x)\frac{1}{Cos\,r\,x}\,\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,\frac{2}{e^{qr}+e^{-qr}}\,l\left(1+p\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}\right)$ (VIII, 419*).

8) $\int l(1+p^2\,Cot^2\,r\,x)\frac{1}{Cos\,r\,x}\,\frac{dx}{q^2+x^2} = \frac{\pi}{q}\,\frac{2}{e^{qr}+e^{-qr}}\,l\left(1+p\frac{e^{qr}+e^{-qr}}{e^{qr}-e^{-qr}}\right)$ (VIII, 419*).

9) $\int l\{2(1+Cos\,p\,x)\}\frac{dx}{q^2-x^2} = \frac{1}{2}p\pi$ (VIII, 508).

10) $\int l\{2(1-\operatorname{Cos} px)\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(pq-\pi)$ (VIII, 508).

11) $\int l(1\pm 2p\operatorname{Cos} sx+p^2)\frac{dx}{q^2+x^2}=\frac{\pi}{q}\,l(p\pm e^{-qs})\;[p^2>1],=\frac{\pi}{q}\,l(1\pm pe^{-qs})\;[p^2<1]$ (VIII, 584).

12) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Sin} px\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}(e^{-pq}-e^{pq})\,l(1+re^{-qs})-\frac{\pi}{2}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs}-$
$-\frac{\pi}{2}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{ fractionn.}\right],=\frac{\pi}{2}(e^{-pq}-e^{pq})\,l(1+re^{-qs})-$
$-\frac{\pi}{2}e^{pq}\sum_1^{d-1}\frac{(-r)^n}{n}e^{-nqs}-\frac{\pi}{2}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{ entier}\right]$ (VIII, 498).

13) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Cos} px\frac{dx}{q^2+x^2}=\frac{\pi}{2q}(e^{pq}+e^{-pq})\,l(1+re^{-qs})+$
$+\frac{\pi}{2q}e^{pq}\sum_1^d\frac{(-r)^n}{n}e^{-nqs}-\frac{\pi}{2q}e^{-pq}\sum_1^d\frac{(-r)^n}{n}e^{nqs}$ (VIII, 498).

14) $\int l(1+2r\operatorname{Cos} sx+r^2)\frac{dx}{q^2-x^2}=\frac{\pi}{q}\operatorname{Arctg}\frac{r\operatorname{Sin} qs}{1+r\operatorname{Cos} qs}$ (VIII, 508).

15) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Sin} px\frac{x\,dx}{q^2-x^2}=\pi\operatorname{Sin} pq.\operatorname{Arctg}\left(\frac{r\operatorname{Sin} qs}{1+r\operatorname{Cos} qs}\right)+$
$+\pi\sum_1^d\frac{(-r)^n}{n}\operatorname{Cos}\{(p-ns)q\}\left[\frac{p}{s}\text{ fractionn.}\right],=\pi\operatorname{Sin} pq.\operatorname{Arctg}\left(\frac{r\operatorname{Sin} qs}{1+r\operatorname{Cos} qs}\right)+$
$+\frac{\pi}{2d}(-r)^d+\pi\sum_1^d\frac{(-r)^n}{n}\operatorname{Cos}\{(p-ns)q\}\left[\frac{p}{s}\text{ entier}\right]$ (VIII, 509).

Dans 12) à 15) on a $d=\mathcal{E}\frac{p}{s}$.

16) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Cos} px\frac{dx}{q^2-x^2}=\frac{\pi}{q}\operatorname{Cos} pq.\operatorname{Arctg}\left(\frac{r\operatorname{Sin} qs}{1+r\operatorname{Cos} qs}\right)-$
$-\frac{\pi}{q}\sum_1^d\frac{(-r)^n}{n}\operatorname{Sin}\{(p-ns)q\}$ (VIII, 509).

17) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Sin}^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a+1}\,l(1+re^{-qs})\,[s>2a+1],=$
$=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a+1}\,l(1+re^{-qs})+r\}\;[s=2a+1]$ (V, 110).

18) $\int l(1+2r\operatorname{Cos} sx+r^2).\operatorname{Cos}^a x\frac{dx}{q^2+x^2}=\frac{\pi}{2^a q}(e^q+e^{-q})^a\,l(1+re^{-qs})\;[s\geqq a]$ (V, 110).

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19) $$\int l(1+2r\,Cos\,s\,x+r^2)\,.\,Sin^{2a}x\,.\,Sin\,p\,x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{pq}-e^{-pq})$$

$$l(1+re^{-qs})\begin{bmatrix}2p>4a<s\\ \text{ou } 4a>2p<s\end{bmatrix},=\frac{(-1)^{a-1}\pi}{2^{2a+1}}\left\{(e^q-e^{-q})^{2a}(e^{pq}-e^{-pq})\,l(1+re^{-qs})-r\right\}$$

$$\begin{bmatrix}p=s-2a \text{ et } 2p>s>4a\\ \text{ou } 2p<s<4a\end{bmatrix} \text{ (V, 110).}$$

20) $$\int l(1+2r\,Cos\,s\,x+r^2)\,.\,Sin^{2a+1}x\,.\,Cos\,p\,x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})$$

$$l(1+re^{-qs})\begin{bmatrix}2p>4a+2<s\\ \text{ou } 4a+2>2p<s\end{bmatrix},=\frac{(-1)^{a-1}\pi}{2^{2a+2}}\left\{(e^q-e^{-q})^{2a+1}(e^{pq}+e^{-pq})\,l(1+re^{-qs})-r\right\}$$

$$\begin{bmatrix}p=s-2a-1 \text{ et } 2p>s>4a+2\\ \text{ou } 2p<s<4a+2\end{bmatrix} \text{ (V, 110).}$$

21) $$\int l(1+2r\,Cos\,s\,x+r^2)\,.\,Cos^a x\,.\,Cos\,p\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{pq}+e^{-pq})\,l(1+re^{-qs})$$

$$\begin{bmatrix}2p\geqq 2a\leqq s\\ \text{ou } 2a\geqq 2p\leqq s\end{bmatrix} \text{ (V, 110).}$$

22) $$\int l(1+2r\,Cos\,s\,x+r^2)\frac{dx}{(q^2+x^2)^2}=\frac{\pi}{2q^3}\,l(1+re^{-qs})+\frac{\pi}{2q^3}\,\frac{re^{-qs}}{1+re^{-qs}} \text{ (IV, 539).}$$

23) $$\int l(1+2r\,Cos\,s\,x+r^2)\frac{dx}{1+x^{2a}}=\frac{\pi}{a}\,l(1+re^{-s})-\frac{\pi}{a}\sum_1^{\frac{1}{2}(a-1)}Cos\frac{n\pi}{a}\,.\,l\left\{1+2re^{-s\,Cos\frac{n\pi}{a}}\right.$$

$$\left.Cos\left(s\,Sin\frac{n\pi}{a}\right)+r^2e^{-2s\,Cos\frac{n\pi}{a}}\right\}-\frac{2\pi}{a}\sum_1^{\frac{1}{2}(a-1)}Sin\frac{n\pi}{a}\,.$$

$$Arcsin\left\{\frac{re^{-s\,Cos\frac{n\pi}{a}}\,Sin\left(s\,Sin\frac{n\pi}{a}\right)}{\sqrt{\left\{1+2re^{-s\,Cos\frac{n\pi}{a}}\,Cos\left(s\,Sin\frac{n\pi}{a}\right)+r^2e^{-2s\,Cos\frac{n\pi}{a}}\right\}}}\right\}\begin{bmatrix}a\\ \text{impair}\end{bmatrix},=$$

$$=\frac{\pi}{a}\sum_0^{\frac{1}{2}a-1}Cos\left(\frac{2n+1}{2a}\pi\right).\,l\left\{1+2re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+\right.$$

$$\left.+r^2e^{-2s\,Cos\left(\frac{2n+1}{2a}\pi\right)}\right\}+\frac{2\pi}{a}\sum_0^{\frac{1}{2}a-1}Sin\left(\frac{2n+1}{2a}\pi\right).$$

$$Arcsin\left\{\frac{re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Sin\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}}{\sqrt{\left\{1+2re^{-s\,Cos\left(\frac{2n+1}{2a}\pi\right)}Cos\left\{s\,Sin\left(\frac{2n+1}{2a}\pi\right)\right\}+r^2e^{-2s\,Cos\left(\frac{2n+1}{2a}\pi\right)}\right\}}}\right\}$$

$$\begin{bmatrix}a\\ \text{pair}\end{bmatrix} \text{ (IV, 538). Partout on a } [r^2<1].$$

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1) $\int l(rx) \,.\, Sin\, px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} e^{-pq} \{2\,l(qr) - Ei(pq)\} - \frac{\pi}{4} e^{pq}\, Ei(-pq)$ (VIII, 456).

2) $\int l(rx) \,.\, Cos\, px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} e^{-pq} \{2\,l(qr) - Ei(pq)\} + \frac{\pi}{4q} e^{pq}\, Ei(-pq)$ (VIII, 456).

3) $\int l\left(\frac{r}{x}\right) . Sin\, px \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} \{e^{-pq} Ei(pq) + e^{pq} Ei(-pq)\} + \frac{\pi}{2} e^{-pq}\, l\frac{r}{q}$ (IV, 537*).

4) $\int l\left(\frac{r}{x}\right) . Cos\, px \frac{dx}{q^2+x^2} = \frac{\pi}{4q} \{e^{-pq}\, Ei(pq) - e^{pq}\, Ei(-pq)\} + \frac{\pi}{2q} e^{-pq}\, l\frac{r}{q}$ (IV, 537*).

5) $\int l(rx) \,.\, Sin\, px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \left\{\frac{\pi}{2} Sin\, pq - Ci(pq) . Cos\, pq - Si(pq) . Sin\, pq + Cos\, pq \,.\, l(qr)\right\}$

V. T. 422, N. 7 & T. 161, N. 4.

6) $\int l(rx) \,.\, Cos\, px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \left\{\frac{\pi}{2} Cos\, pq + Ci(pq) . Sin\, pq - Si(pq) . Cos\, pq + Sin\, pq \,.\, l(qr)\right\}$

V. T. 161, N. 4 & T. 422, N. 8.

7) $\int l\left(\frac{r}{x}\right) . Sin\, px \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} \left\{Ci(pq) . Cos\, pq + Si(pq) . Sin\, pq - \frac{\pi}{2} Sin\, pq + Cos\, pq \,.\, l\frac{r}{q}\right\}$ (IV, 537*).

8) $\int l\left(\frac{r}{x}\right) . Cos\, px \frac{dx}{q^2-x^2} = \frac{\pi}{2q} \left\{Si(pq) . Cos\, pq - Ci(pq) . Sin\, pq - \frac{\pi}{2} Cos\, pq + Sin\, pq \,.\, l\frac{r}{p}\right\}$ (IV, 537*).

9) $\int l(rx) \,.\, Sin\, px \frac{x\,dx}{q^4-x^4} = \frac{\pi}{8q^2} \{\pi\, Sin\, pq - 2\, Si(pq) . Sin\, pq - 2\, Ci(pq) . Cos\, pq - e^{-pq} Ei(pq) -$

$- e^{pq}\, Ei(-pq) + (e^{-pq} - Cos\, pq)\, l(qr)\}$ V. T. 422, N. 1, 5.

10) $\int l(rx) \,.\, Sin\, px \frac{x^3\,dx}{q^4-x^4} = \frac{\pi}{8} \{\pi\, Sin\, pq - 2\, Si(pq) . Sin\, pq - 2\, Ci(pq) . Cos\, pq + e^{-pq}\, Ei(pq) +$

$+ e^{pq}\, Ei(-pq) - (e^{-pq} + Cos\, pq)\, l(qr)\}$ V. T. 422, N. 1, 5.

11) $\int l(rx) \,.\, Cos\, px \frac{dx}{q^4-x^4} = \frac{\pi}{8q^3} \{\pi\, Cos\, pq - 2\, Si(pq) . Cos\, pq + 2\, Ci(pq) . Sin\, pq - e^{-pq} Ei(pq) +$

$+ e^{pq}\, Ei(-pq) + (e^{-pq} + Sin\, pq)\, l(qr)\}$ V. T. 422, N. 2, 6.

12) $\int l(rx) \,.\, Cos\, px \frac{x^2\,dx}{q^4-x^4} = \frac{\pi}{8q} \{\pi\, Cos\, pq - 2\, Si(pq) . Cos\, pq + 2\, Ci(pq) . Sin\, pq + e^{-pq}\, Ei(pq) -$

$- e^{pq}\, Ei(-pq) - (e^{-pq} - Sin\, pq)\, l(qr)\}$ V. T. 422, N. 2, 6.

1) $\int \frac{l\, Sin\, r x}{x^4 + 2 p^2 x^2\, Cos\, 2\lambda + p^4}\, dx = \frac{\pi}{8 p^3}\, Sec\,\lambda \,.\, l \left\{ \frac{1 - 2 e^{-2 p r\, Cos\lambda}\, Cos\,(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}}{4} \right\} -$

$- \frac{\pi}{4 p^3}\, Cosec\,\lambda \,.\, Arcsin \left\{ \frac{e^{-2 p r\, Cos\lambda}\, Sin\,(2 p r\, Sin\,\lambda)}{\sqrt{1 - 2 e^{-2 p r\, Cos\lambda}\, Cos(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}}} \right\}$ (IV, 539).

2) $\int \frac{l\, Cos\, r x}{x^4 + 2 p^2 x^2\, Cos\, 2\lambda + p^4}\, dx = \frac{\pi}{8 p^3}\, Sec\,\lambda \,.\, l \left\{ \frac{1 + 2 e^{-2 p r\, Cos\lambda}\, Cos\,(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}}{4} \right\} +$

$+ \frac{\pi}{4 p^3}\, Cosec\,\lambda \,.\, Arcsin \left\{ \frac{e^{-2 p r\, Cos\lambda}\, Sin\,(2 p r\, Sin\,\lambda)}{\sqrt{1 + 2 e^{-2 p r\, Cos\lambda}\, Cos\,(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}}} \right\}$ (IV, 539).

3) $\int \frac{l\, Tg\, r x}{x^4 + 2 p^2 x^2\, Cos\, 2\lambda + p^4}\, dx = \frac{\pi}{8 p^3}\, Sec\,\lambda \,.\, l \left\{ \frac{1 - 2 e^{-2 p r\, Cos\lambda}\, Cos\,(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}}{1 + 2 e^{-2 p r\, Cos\lambda}\, Cos\,(2 p r\, Sin\,\lambda) + e^{-4 p r\, Cos\lambda}} \right\} -$

$- \frac{\pi}{4 p^3}\, Cosec\,\lambda \,.\, Arcsin \left\{ \frac{2 e^{-2 p r\, Cos\lambda}\, Sin\,(2 p r\, Sin\,\lambda)}{\sqrt{1 - 2 e^{-4 p r\, Cos\lambda}\, Cos\,(4 p r\, Sin\,\lambda) + e^{-8 p r\, Cos\lambda}}} \right\}$ V. T. 423, N. 1, 2.

4) $\int l(1 + 2 q\, Cos\, r x + q^2) \frac{dx}{x^4 + 2 p^2 x^2\, Cos 2\lambda + p^4} = \frac{\pi}{4 p^3}\, Sec\,\lambda \,.\, l \{ 1 + 2 q e^{-p r\, Cos\lambda}\, Cos\,(p r\, Sin\,\lambda) +$

$+ q^2 e^{-2 p r\, Cos\lambda} \} + \frac{\pi}{2 p^3}\, Cosec\,\lambda \,.\, Arcsin \frac{q e^{-p r\, Cos\lambda}\, Sin\,(p r\, Sin\,\lambda)}{\sqrt{1 + 2 q e^{-p r\, Cos\lambda}\, Cos\,(p r\, Sin\lambda) + q^2 e^{-2 p r\, Cos\lambda}}}\, [q^2 < 1], =$

$= \frac{\pi}{4 p^3}\, Sec\,\lambda \,.\, l \{ q^2 + 2 q e^{-p r\, Cos\lambda}\, Cos\,(p r\, Sin\,\lambda) + e^{-2 p r\, Cos\lambda} \} + \frac{\pi}{2 p^3}\, Cosec\,\lambda \,.$

$Arcsin \frac{e^{-p r\, Cos\lambda}\, Sin\,(p r\, Sin\,\lambda)}{\sqrt{q^2 + 2 q e^{-p r\, Cos\lambda}\, Cos\,(p r\, Sin\,\lambda) + e^{-2 p r\, Cos\lambda}}}\, [q^2 > 1]$ (IV, 540).

5) $\int \frac{x^p\, Sin\,(q\, l x)}{1 + 2 x\, Cos\,\lambda + x^2}\, dx = \frac{\pi}{Sin\,\lambda}\, \frac{\{ e^{q(\pi+\lambda)} - e^{-q(\pi+\lambda)} \}\, Sin\, \{ p(\pi - \lambda) \} - \{ e^{q(\pi-\lambda)} - e^{q(\lambda-\pi)} \}\, Sin\, \{ p(\pi + \lambda) \}}{e^{2 q \pi} - 2\, Cos\, 2 p \pi + e^{-2 q \pi}}$

6) $\int \frac{x^p\, Cos\,(q\, l x)}{1 + 2 x\, Cos\lambda + x^2}\, dx = \frac{\pi}{Sin\,\lambda}\, \frac{\{ e^{q(\pi+\lambda)} + e^{-q(\pi+\lambda)} \}\, Cos\, \{ p(\pi - \lambda) \} - \{ e^{q(\pi-\lambda)} + e^{q(\lambda-\pi)} \}\, Cos\, \{ p(\pi + \lambda) \}}{e^{2 q \pi} - 2\, Cos\, 2 p \pi + e^{-2 q \pi}}$

Sur 5) et 6) voyez Cauchy, A. M. 17, 84.

7) $\int \frac{Cos\,(q\, l x)}{x^p - 2\, Cos\,\lambda + x^{-p}}\, \frac{dx}{x} = \frac{\pi}{p\, Sin\,\lambda}\, \frac{e^{\frac{q}{p}(\lambda - \pi)} - e^{\frac{q}{p}(\pi - \lambda)}}{e^{-\frac{q \pi}{p}} - e^{\frac{q \pi}{p}}}$ (IV, 540).

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8) $\int \frac{l\,Sin\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-2qr})(1-pe^{2qr})}\left\{l\frac{1-e^{-2qr}}{2} - \right.$

$\left. - \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\,l(1-p)\right\}$ (H, 151).

9) $\int \frac{l\,Sin\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\,Cos\,2\,qr+p^2)}\left\{\frac{2p}{1-p^2}\,Sin\,2\,qr.\,l(1-p)+qr-\frac{1}{2}\pi\right\}$
(H, 151).

10) $\int \frac{l(\frac{1}{2}\,Sin\,r\,x)}{1-2p\,Cos\,r\,x+p^2}\,\frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\left\{l\frac{1-e^{-2qr}}{4} - \right.$

$\left. - \frac{p}{1-p^2}(e^{qr}-e^{-qr})\,l(1-p^2)\right\}$ (H, 152).

11) $\int \frac{l(\frac{1}{2}\,Sin\,r\,x)}{1-2p\,Cos\,r\,x+p^2}\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\,Cos\,qr+p^2)}\left\{\frac{2p}{1-p^2}\,Sin\,qr.\,l(1-p^2)+qr-\frac{1}{2}\pi\right\}$
(H, 153).

12) $\int \frac{l\,Cos\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\left\{l\frac{1+e^{-2qr}}{2} - \right.$

$\left. - \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\,l(1+p)\right\}$ (H, 151).

13) $\int \frac{l\,Cos\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q(1-2p\,Cos\,2\,qr+p^2)}\left\{\frac{2p}{1-p^2}\,Sin\,2\,qr.\,l(1+p)+qr\right\}$
(H, 151).

14) $\int \frac{l\,Tg\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2+x^2} = \frac{\pi}{2q(1-pe^{-qr})(1-pe^{qr})}\left\{l\frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}} + \right.$

$\left. + \frac{p}{1-p^2}(e^{2qr}-e^{-2qr})\,l\frac{1+p}{1-p}\right\}$ (H, 152).

15) $\int \frac{l\,Tg\,r\,x}{1-2p\,Cos\,2\,r\,x+p^2}\,\frac{dx}{q^2-x^2} = \frac{\pi}{q(1-2p\,Cos\,2\,qr+p^2)}\left\{\frac{p}{1-p^2}\,Sin\,2\,qr.\,l\frac{1-p}{1+p}-\frac{1}{4}\pi\right\}$
(H, 153).

Dans 8) à 15) on a $[p^2<1]$.

16) $\int l\left(\frac{1+Tg\,q\,x}{1-Tg\,q\,x}\right)\frac{1}{p^2+x^2}\,\frac{dx}{x} = \frac{\pi}{p^2}\,Arctg\,\frac{e^{pq}-e^{-pq}}{e^{pq}+e^{-pq}}$ (IV, 540).

17) $\int \frac{\pi(1-Cos\,q\,x)-2\,Sin\,q\,x\,.\,l\,x}{\frac{1}{4}\pi^2+(l\,x)^2}\,\frac{dx}{x} = 2\pi(1-e^{-q})$ (IV, 540).

F. Alg. rat. fract.; Logarithmique; Circulaire Directe. Autre forme.	TABLE 423, suite.	Lim. 0 et ∞.

18) $\displaystyle\int \frac{\frac{1}{2}\pi\,(Cos\,p\,x - Cos\,q\,x) + (Sin\,p\,x - Sin\,q\,x)\,l\,x}{\frac{1}{4}\pi^2 + (l\,x)^2}\,\frac{dx}{x} = \pi\,(e^{-p} - e^{-q})$ Cauchy, A. M. 17, 84.

19) $\displaystyle\int l\,x \,.\, Sin\,p\,x \,.\, Sin^{2a}x\,\frac{dx}{x^{2b-1}} = \frac{(-1)^b\,\pi}{2^{2a+1}\,1^{2b/1}}\left\{\binom{2a}{a} q^{2b-2}\left\{l\,q - Z'(2b-1)\right\} + \right.$

$\displaystyle + \sum_1^p (-1)^n \binom{2a}{a-n}\left[(2n+q)^{2b-2}\left\{l(2n+q) - Z'(2b-1)\right\} - \right.$

$\displaystyle \left.\left. - (2n-q)^{2b-2}\left\{l(2n-q) - Z'(2b-1)\right\}\right]\right\}.$

20) $\displaystyle\int l\,x \,.\, Sin\,p\,x \,.\, Sin^{2a+1}x\,\frac{dx}{x^{2b}} = \frac{(-1)^b\,\pi}{2^{2a+2}\,1^{2b+1/1}}\sum_0^p (-1)^n \binom{2a+1}{a-n}\left[(2n+1+q)^{2b-1}\right.$

$\displaystyle \left.\left\{l(2n+1+q) - Z'(2b)\right\} - (2n+1-q)^{2b-1}\left\{l(2n+1-q) - Z'(2b)\right\}\right].$

21) $\displaystyle\int l\,x \,.\, Cos\,p\,x \,.\, Sin^{2a}x\,\frac{dx}{x^{2b}} = \frac{(-1)^{b-1}\,\pi}{2^{2a+1}\,1^{2b+1/1}}\left\{\binom{2a}{a} q^{2b-1}\left\{l\,q - Z'(2b)\right\} + \sum_1^p (-1)^n \binom{2a}{a-n}\right.$

$\displaystyle \left.\left[(2n+q)^{2b-1}\left\{l(2n+q) - Z'(2b)\right\} + (2n-q)^{2b-1}\left\{l(2n-q) - Z'(2b)\right\}\right]\right\}.$

22) $\displaystyle\int l\,x \,.\, Cos\,p\,x \,.\, Sin^{2a+1}x\,\frac{dx}{x^{2b+1}} = \frac{(-1)^{b-1}\,\pi}{2^{2a+2}\,1^{2b+2/1}}\sum_0^p (-1)^n \binom{2a+1}{a-n}\left[(2n+1+q)^{2b}\right.$

$\displaystyle \left.\left\{l(2n+1+q) - Z'(2b-1)\right\} + (2n+1-q)^{2b}\left\{l(2n+1-q) - Z'(2b-1)\right\}\right].$

Dans 19) à 22) on a $[a \geqq b]$. Voir Enneper, Schl. Z. 11, 251.

F. Alg. rat. ent.; Logarithmique; Circulaire Directe.	TABLE 424.	Lim. $-\infty$ et ∞.

1) $\displaystyle\int l\,Sin\,q\,x\,\frac{r+s\,x}{x^2 + 2\,p\,x\,Cos\,\lambda + p^2}\,dx = \frac{\pi}{p\,Sin\,\lambda}\left(\frac{1}{2}s^2 - r\right)l\,2 +$

$\displaystyle + \frac{r - p\,s\,Cos\,\lambda}{2\,p\,Sin\,\lambda}\,\pi\,l\left\{1 - 2\,e^{-2\,p\,q\,Sin\,\lambda}\,Cos\,(2\,p\,q\,Cos\,\lambda) + e^{-4\,p\,q\,Sin\,\lambda}\right\} -$

$\displaystyle - s\,\pi\,Arcsin\left\{\frac{e^{-2\,p\,q\,Sin\,\lambda}\,Sin\,(2\,p\,q\,Cos\,\lambda)}{\sqrt{1 - 2\,e^{-2\,p\,q\,Sin\,\lambda}\,Cos\,(2\,p\,q\,Cos\,\lambda) + e^{-4\,p\,q\,Sin\,\lambda}}}\right\}$ (IV, 540).

2) $\displaystyle\int l\,Cos\,q\,x\,\frac{r+s\,x}{x^2 + 2\,p\,x\,Cos\,\lambda + p^2}\,dx = \frac{\pi}{p\,Sin\,\lambda}\left(\frac{1}{2}s^2 - r\right)l\,2 +$

$\displaystyle + \frac{r - p\,s\,Cos\,\lambda}{2\,p\,Sin\,\lambda}\,\pi\,l\left\{1 + 2\,e^{-2\,p\,q\,Sin\,\lambda}\,Cos\,(2\,p\,q\,Cos\,\lambda) + e^{-4\,p\,q\,Sin\,\lambda}\right\} +$

$\displaystyle + s\,\pi\,Arcsin\left\{\frac{e^{-2\,p\,q\,Sin\,\lambda}\,Sin\,(2\,p\,q\,Cos\,\lambda)}{\sqrt{1 + 2\,e^{-2\,p\,q\,Sin\,\lambda}\,Cos\,(2\,p\,q\,Cos\,\lambda) + e^{-4\,p\,q\,Sin\,\lambda}}}\right\}$ (IV, 540).

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3) $$\int l\,Tg\,q\,x\,\frac{r+s\,x}{x^2+2\,p\,x\,Cos\,\lambda+p^2}\,dx=\frac{r-p\,s\,Cos\,\lambda}{2\,p\,Sin\,\lambda}\,\pi\,l\,\frac{e^{2\,p\,q\,Sin\,\lambda}-2\,Cos\,(2\,p\,q\,Cos\,\lambda)+e^{-2\,p\,q\,Sin\,\lambda}}{e^{2\,p\,q\,Sin\,\lambda}+2\,Cos\,(2\,p\,q\,Cos\,\lambda)+e^{-2\,p\,q\,Sin\,\lambda}}-$$
$$-\,s\,\pi\,Arcsin\left\{\frac{2\,e^{-2\,p\,q\,Sin\,\lambda}\,Sin\,(2\,p\,q\,Cos\,\lambda)}{\sqrt{1-2\,e^{-4\,p\,q\,Sin\,\lambda}\,Cos\,(4\,p\,q\,Cos\,\lambda)+e^{-8\,p\,q\,Sin\,\lambda}}}\right\}$$ V. T. 424, N. 1, 2.

F. Alg. rat. ent.; Logarithmique de Circul. Directe. TABLE 425. Lim. 0 et $\frac{\pi}{4}$.

1) $$\int l\,Sin\,x\,.\,x^{p-1}\,dx=-\frac{1}{2p}\left(\frac{\pi}{4}\right)^p\left\{l2-2+\sum_1^\infty\frac{4}{p+2\,m}\sum_1^\infty\frac{1}{(4\,n)^{2m}}\right\}$$ V. T. 204, N. 6.

2) $$\int l\,Tg\,x\,\frac{x}{Sin\,2\,x}\,dx=-\frac{1}{64}\,\pi^3$$ V. T. 286, N. 16.

3) $$\int (l\,Tg\,x)^3\,\frac{x}{Sin\,2\,x}\,dx=-\frac{5}{512}\,\pi^5$$ V. T. 286, N. 19.

4) $$\int (l\,Tg\,x)^5\,\frac{x}{Sin\,2\,x}\,dx=-\frac{61}{3072}\,\pi^7$$ V. T. 286, N. 20.

5) $$\int (l\,Tg\,x)^q\,\frac{x}{Sin\,2\,x}\,dx=\frac{1}{2}\,Cos\,q\,\pi\,.\,\Gamma\,(q+1)\,.\sum_0^\infty\frac{(-1)^n}{(2\,n+1)^{q+2}}$$ V. T. 286, N. 21.

6) $$\int Sin\,(2\,p\,l\,Tg\,x)\,\frac{x}{Sin\,2\,x}\,dx=\frac{-\pi}{16\,p}\,\frac{(1-e^{p\pi})^2}{1+e^{2\,p\,\pi}}$$ V. T. 304, N. 3.

7) $$\int\frac{x}{\sqrt{l\,Cot\,x}}\,\frac{dx}{Sin\,2\,x}=\frac{1}{2}\,\sqrt{\pi}\,.\sum_0^\infty\frac{(-1)^n}{\sqrt{2\,n+1}^3}$$ V. T. 297, N. 9.

8) $$\int\frac{x}{\sqrt{l\,Cot\,x}^3}\,\frac{dx}{Sin\,2\,x}=\infty$$ V. T. 304, N. 24.

9) $$\int\frac{l\,Tg\,x}{\{\pi^2+(l\,Tg\,x)^2\}^2}\,\frac{x}{Sin\,2\,x}\,dx=\frac{\pi-3}{16\,\pi}$$ V. T. 301, N. 1.

10) $$\int\frac{l\,Tg\,x}{\{\pi^2+(l\,Tg^2\,x)^2\}^2}\,\frac{x}{Sin\,2\,x}\,dx=\frac{1}{64}\,(1-l2)$$ V. T. 301, N. 2.

11) $$\int\frac{l\,Tg\,x}{\{q^2+(l\,Tg\,x)^2\}^2}\,\frac{x}{Sin\,2\,x}\,dx=\frac{1}{16\,q}\left\{Z'\left(\frac{2\,q+3\,\pi}{4\,\pi}\right)-Z'\left(\frac{2\,q+\pi}{4\,\pi}\right)-\frac{\pi}{q}\right\}$$ V. T. 301, N. 3.

1) $$\int l(1-p^2 Sin^2 x) . Sin\,x . Cos\,x . \sqrt{1-p^2 Sin^2 x} . x\,dx = \frac{1}{27p^2}\Big[3\pi\Big\{1-\frac{3}{2}l(1-p^2)\Big\}\sqrt{1-p^2}^3 + \\ +\Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3l(1-p^2)\}E'(p)\Big].$$

2) $$\int l(1-p^2 Cos^2 x) . Sin\,x . Cos\,x . \sqrt{1-p^2 Cos^2 x} . x\,dx = \frac{1}{27p^2}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)+ \\ +\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3l(1-p^2)\}E'(p)\Big].$$

3) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x . Cos\,x}{\sqrt{1-p^2 Sin^2 x}}x\,dx = \frac{1}{p^2}\Big[\pi\Big\{1-\frac{1}{2}l(1-p^2)\Big\}\sqrt{1-p^2}+(2-p^2)F'(p)- \\ -\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big].$$

4) $$\int l(1-p^2 Sin^2 x)\frac{Sin\,x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}}x\,dx = \frac{1}{27p^4}\Big[-3\Big\{8-\frac{3}{2}l(1-p^2)\Big\}\sqrt{1-p^2}^3 - \\ -\Big\{(32-59p^2+21p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(40-47p^2)- \\ -\frac{3}{2}(5-7p^2)l(1-p^2)\Big\}E'(p)\Big].$$

5) $$\int l(1-p^2 Sin^2 x)\frac{Sin^3 x . Cos\,x}{\sqrt{1-p^2 Sin^2 x}}x\,dx = \frac{1}{27p^4}\Big[3\Big\{(8+p^2)-\frac{3}{2}(2+p^2)l(1-p^2)\Big\}\pi\sqrt{1-p^2}+ \\ +\Big\{(32-5p^2-6p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(40+7p^2)+ \\ +\frac{3}{2}(5+2p^2)l(1-p^2)\Big\}E'(p)\Big].$$

6) $$\int l(1-p^2 Cos^2 x)\frac{Sin\,x . Cos\,x}{\sqrt{1-p^2 Cos^2 x}}x\,dx = \frac{1}{p^2}\Big[-\pi-(2-p^2)F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big].$$

7) $$\int l(1-p^2 Cos^2 x)\frac{Sin\,x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}}x\,dx = \frac{1}{27p^4}\Big[-24\pi-\Big\{(32-5p^2-6p^4)+ \\ +\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{2(40+7p^2)-\frac{3}{2}(5+2p^2)l(1-p^2)\Big\}E'(p)\Big].$$

8) $$\int l(1-p^2 Cos^2 x)\frac{Sin^3 x . Cos\,x}{\sqrt{1-p^2 Cos^2 x}}x\,dx = \frac{1}{27p^4}\Big[3(8-9p^2)\pi+\Big\{(32-59p^2+21p^4)+ \\ +\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(40-47p^2)-\frac{3}{2}(5-7p^2)l(1-p^2)\Big\}E'(p)\Big].$$

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$$9)\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^2}\left[\left\{1+\frac{1}{2}l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{2+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)\right].$$

$$10)\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^4}\left[-\pi\, l(1-p^2).\sqrt{1-p^2}+\left\{(4-3p^2)+\right.\right.$$
$$\left.\left.+\frac{1}{2}(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)-\left\{4-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$11)\int l(1-p^2 Sin^2 x)\frac{Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[-12\{2-3\,l(1-p^2)\}\,\pi\sqrt{1-p^2}^3-\right.$$
$$-\left\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+$$
$$\left.+\{2(94-101p^2)-3(7-8p^2)\,l(1-p^2)\}\,\mathrm{E}'(p)\right].$$

$$12)\int l(1-p^2 Sin^2 x)\frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{p^4}\left[\left\{p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)+\left\{4-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$13)\int l(1-p^2 Sin^2 x)\frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[3\{8(1-p^2)-3(4-p^2)\,l(1-p^2)\}\sqrt{1-p^2}+\right.$$
$$+\{7(20-20p^2+3p^4)+15(1-p^2)\,l(1-p^2)\}\,\mathrm{F}'(p)+$$
$$\left.+(2-p^2)\left\{-94+\frac{21}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$14)\int l(1-p^2 Sin^2 x)\frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{27p^6}\left[3\left\{(8-16p^2-p^4)+\frac{3}{2}(8-4p^2-p^4)\right.\right.$$
$$\left.l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(70-16p^2-3p^4)+\frac{3}{2}(10-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+$$
$$\left.+\{2(94+7p^2)-8(7+p^2)\,l(1-p^2)\}\,\mathrm{E}'(p)\right].$$

$$15)\int l(1-p^2 Cos^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Cos^2 x}^3}x\,dx=\frac{1}{p^2}\left[-\pi+\left\{2+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)\right].$$

$$16)\int l(1-p^2 Cos^2 x)\frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3}x\,dx=\frac{1}{p^4}\left[\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)-\right.$$
$$\left.-\left\{4-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

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17) $\int l(1-p^2 Cos^2 x) \frac{Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[24\pi + \Big\{2(70-16p^2-3p^4) + $
$+\frac{3}{2}\{(10-p^2)\,l(1-p^2)\Big\}F'(p) - \{2(94+7p^2) - 3(7+p^2)\,l(1-p^2)\}E'(p)\Big]$.

18) $\int l(1-p^2 Cos^2 x) \frac{Sin^3 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3} x\, dx = \frac{1}{p^4}\Big[-p^2\pi - \Big\{(4-3p^2) + $
$+\frac{1}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p) + \Big\{4 - \frac{1}{2}\,l(1-p^2)\Big\}E'(p)\Big]$.

19) $\int l(1-p^2 Cos^2 x) \frac{Sin^3 x \,.\, Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[-24\pi - \{7(20-20p^2+3p^4) + $
$+15(1-p^2)\,l(1-p^2)\}F'(p) + (2-p^2)\Big\{94 - \frac{21}{2}\,l(1-p^2)\Big\}E'(p)\Big]$.

20) $\int l(1-p^2 Cos^2 x) \frac{Sin^5 x \,.\, Cos\, x}{\sqrt{1-p^2 Cos^2 x}^3} x\, dx = \frac{1}{27p^6}\Big[3(8-9p^4)\pi + \Big\{2(70-124p^2+51p^4) + $
$+\frac{3}{2}(10-9p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p) + \Big\{-2(94-101p^2) + \frac{3}{2}(7-8p^2)\,l(1-p^2)\Big\}E'(p)\Big]$.

Sur 1) à 20) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. $l(1-p^2 Sin^2 x)$, $l(1-p^2 Cos^2 x)$; TABLE 427. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}^5$; $[p^2<1]$.

1) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x \,.\, Cos\, x}{\sqrt{1-p^2 Sin^2 x}^5} x\, dx = \frac{1}{9p^2(1-p^2)}\Big[\Big\{1 + \frac{3}{2}\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} + $
$+3(2-p^2)F'(p) - \Big\{8 + \frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$.

2) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x \,.\, Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^5} x\, dx = \frac{1}{9p^4}\Big[\{8+3\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}} - 3\Big\{(8-p^2) + $
$+\frac{3}{2}\,l(1-p^2)\Big\}F'(p) + \Big\{8 + \frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$.

3) $\int l(1-p^2 Sin^2 x) \frac{Sin\, x \,.\, Cos^5 x}{\sqrt{1-p^2 Sin^2 x}^5} x\, dx = \frac{1}{9p^6}\Big[-4\{2+3\,l(1-p^2)\}\pi\sqrt{1-p^2} + $
$+3\{(20-18p^2+p^4) + 3(1-p^2)\,l(1-p^2)\}F'(p) - \Big\{4(11-2p^2) - $
$-\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}E'(p)\Big]$.

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$$4)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{27p^8}\Big[72\,l(1-p^2)\,.\,\pi\sqrt{1-p^2}^{\,3} - \Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p) + \Big\{2(160-179p^2+12p^4)-\frac{3}{2}(20-19p^2-3p^4)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$5)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{9p^4(1-p^2)}\Big[-\Big\{(8-9p^2)+\frac{3}{2}(2-3p^2)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} + 3\Big\{(8-7p^2)+\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p) - \Big\{8+\frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big].$$

$$6)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{9p^6}\Big[\Big\{8+3(4-3p^2)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} - 3(2-p^2)\Big\{10+\frac{3}{2}\,l(1-p^2)\Big\}F'(p) + \{44-3\,l(1-p^2)\}E'(p)\Big].$$

$$7)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos^5 x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{27p^8}\Big[-12\{2p^2+3(2-p^2)\,l(1-p^2)\}\pi\sqrt{1-p^2} + \Big\{(320-410p^2+111p^4)+\frac{3}{2}(28-9p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p) - \Big\{2(160-113p^2)-\frac{3}{2}(20-13p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$8)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{9p^6(1-p^2)}\Big[-\Big\{(8-9p^2)+\frac{3}{2}(8-12p^2+3p^4)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} + 3\{(20-22p^2+3p^4)+3(1-p^2)\,l(1-p^2)\}F'(p) + \Big\{-4(11-9p^2)+\frac{3}{2}(2-3p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

$$9)\ \int l(1-p^2\,Sin^2 x)\,\frac{Sin^5 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^{\,5}}\,x\,dx = \frac{1}{27p^8}\Big[3\{8p^2(2-p^2)+3(8-8p^2+p^4)\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}} - \Big\{(320-230p^2+21p^4)+\frac{3}{2}(28-19p^2)\,l(1-p^2)\Big\}F'(p) + \Big\{2(160-47p^2)-\frac{3}{2}(20-7p^2)\,l(1-p^2)\Big\}E'(p)\Big].$$

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10) $$\int l(1-p^2 Sin^2 x) \frac{Sin^7 x . Cos x}{\sqrt{1-p^2 Sin^2 x}^5} x dx = \frac{1}{27p^8(1-p^2)} \Big[-3\Big\{p^2(24-24p^2-p^4) + \frac{3}{2}(16-24p^4+6p^4+p^6)l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}} + \Big\{(320-370p^2+53p^4+6p^6) + \frac{3}{2}(28-p^2)(1-p^2)l(1-p^2)\Big\}F'(p) + \Big\{-2(160-141p^2-7p^4) + \frac{3}{2}(20-21p^2-2p^4)l(1-p^2)\Big\}E'(p)\Big].$$

11) $$\int l(1-p^2 Cos^2 x) \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9p^2(1-p^2)} \Big[-(1-p^2)\pi - 3(2-p^2)F'(p) + \Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big].$$

12) $$\int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9p^4(1-p^2)} \Big[8(1-p^2)\pi - 3\Big\{(8-7p^2) + \frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p) + \Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big].$$

13) $$\int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9p^6(1-p^2)} \Big[8(1-p^2)\pi - 3\{(20-22p^2+3p^4) + 3(1-p^2)l(1-p^2)\}F'(p) + \Big\{4(11-9p^2) - \frac{3}{2}(2-3p^2)l(1-p^2)\Big\}E'(p)\Big].$$

14) $$\int l(1-p^2 Cos^2 x) \frac{Sin x . Cos^7 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{27p^8(1-p^2)} \Big[-\Big\{(320-370p^2+53p^4+6p^6) + \frac{3}{2}(28-p^2)(1-p^2)l(1-p^2)\Big\}F'(p) + \Big\{2(160-141p^2-7p^4) - \frac{3}{2}(20-21p^2-2p^4)l(1-p^2)\Big\}E'(p)\Big].$$

15) $$\int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9p^4} \Big[-(8+p^2)\pi + 3\Big\{(8-p^2) + \frac{3}{2}l(1-p^2)\Big\}F'(p) - \Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big].$$

16) $$\int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x dx = \frac{1}{9p^6} \Big[-8(1-p^2)\pi + 3(2-p^2)\Big\{10+\frac{3}{2}l(1-p^2)\Big\}F'(p) + \Big\{-44+3l(1-p^2)\Big\}E'(p)\Big].$$

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F. Alg. rat. ent.;
Logar. $l(1-p^2 Sin^2 x), l(1-p^2 Cos^2 x)$; TABLE 427, suite. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}^5$; $[p^2<1]$.

17) $\int l(1-p^2 Cos^2 x) \frac{Sin^3 x . Cos^5 x}{\sqrt{1-p^2 Cos^2 x}^5} x\,dx = \frac{1}{27p^8} \Big[24p^2\pi + \Big\{(320-230p^2+21p^4) + \frac{3}{2}(28-19p^2)l(1-p^2)\Big\} F'(p) + \Big\{-2(160-47p^2) + \frac{3}{2}(20-7p^2)l(1-p^2)\Big\} E'(p)\Big]$.

18) $\int l(1-p^2 Cos^2 x) \frac{Sin^5 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x\,dx = \frac{1}{9p^6} \Big[(8-16p^2-p^4)\pi - 3\Big\{(20-18p^2+p^4) + 3(1-p^2)l(1-p^2)\Big\} F'(p) + \Big\{4(11-2p^2) - \frac{3}{2}(2+p^2)l(1-p^2)\Big\} E'(p)\Big]$.

19) $\int l(1-p^2 Cos^2 x) \frac{Sin^5 x . Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^5} x\,dx = \frac{1}{27p^8} \Big[-24p^2(4-3p^2)\pi - \Big\{(320-410p^2 + 111p^4) + \frac{3}{2}(28-9p^2)(1-p^2)l(1-p^2)\Big\} F'(p) + \Big\{2(160-113p^2) - \frac{3}{2}(20-13p^2)l(1-p^2)\Big\} E'(p)\Big]$.

20) $\int l(1-p^2 Cos^2 x) \frac{Sin^7 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^5} x\,dx = \frac{1}{27p^8} \Big[3p^2(40-40p^2-p^4)\pi + \Big\{(320-590p^2 + 273p^4 - 9p^6) + \frac{3}{2}(28-27p^2)(1-p^2)l(1-p^2)\Big\} F'(p) + \Big\{-2(160-179p^2+12p^4) + \frac{3}{2}(20-19p^2-3p^4)l(1-p^2)\Big\} E'(p)\Big]$.

Sur 1) à 20) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. $l(1-p^2 Sin^2 x)$; TABLE 428. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2 Sin^2 x}^7$; $[p^2<1]$.

1) $\int l(1-p^2 Sin^2 x) \frac{Sin x\, Cos x}{\sqrt{1-p^2 Sin^2 x}^7} x\,dx = \frac{1}{225p^2(1-p^2)^2} \Big[\Big\{1 + \frac{5}{2}l(1-p^2)\Big\} \frac{9\pi}{\sqrt{1-p^2}} + \Big\{2(53-53p^2+15p^4) + \frac{15}{2}(1-p^2)l(1-p^2)\Big\} F'(p) - (2-p^2)\Big\{62+15l(1-p^2)\Big\} E'(p)\Big]$.

2) $\int l(1-p^2 Sin^2 x) \frac{Sin x . Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7} x\,dx = \frac{1}{225p^4(1-p^2)} \Big[\Big\{16 + 15l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} + \Big\{(44+31p^2-30p^4) - \frac{15}{2}(1-p^2)l(1-p^2)\Big\} F'(p) - \Big\{2(38+31p^2) + \frac{15}{2}(1+2p^2)l(1-p^2)\Big\} E'(p)\Big]$.

$$3)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{225\,p^6}\left[4\left\{46+15\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$-\left\{2\,(322-22\,p^2-15\,p^4)+\frac{15}{2}\,(14+p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+$$
$$\left.+\left\{2\,(138+31\,p^2)+15\,(3+p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$4)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{225\,p^8}\left[-24\left\{16+15\,l(1-p^2)\right\}\pi\sqrt{1-p^2}+\right.$$
$$+\left\{(2144-2038\,p^2+89\,p^4+30\,p^6)+\frac{15}{2}\,(44+p^2)(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+$$
$$\left.+\left\{-2\,(688-207\,p^2+31\,p^4)+\frac{15}{2}\,(4+9\,p^2+2\,p^4)\,l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$5)\int l(1-p^2\,Sin^2 x)\,\frac{Sin\,x\,.\,Cos^9 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{675\,p^{10}}\left[576\left\{2+5\,l(1-p^2)\right\}\pi\sqrt{1-p^2}^3-\right.$$
$$-\left\{2\,(7216-13648\,p^2+6603\,p^4-201\,p^6-45\,p^8)+\frac{15}{2}\,(272-264\,p^2-3\,p^4)\right.$$
$$\left.(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+\left\{2\,(6064-7160\,p^2+828\,p^4-93\,p^6)+\right.$$
$$\left.\left.+30\,(56-18\,p^2-18\,p^4-3\,p^6)\,l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$6)\int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{225\,p^4\,(1-p^2)^2}\left[-\left\{(16-25\,p^2)+\frac{15}{2}\,(2-5\,p^2)\right.\right.$$
$$\left.l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\left\{-(44-119\,p^2+45\,p^4)+\frac{15}{2}\,(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)+$$
$$\left.+\left\{2\,(38-69\,p^2)+\frac{15}{2}\,(1-3\,p^2)\,l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

$$7)\int l(1-p^2\,Sin^2 x)\,\frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{225\,p^6\,(1-p^2)}\left[-\left\{8\,(23-25\,p^2)+15\,(4-5\,p^2)\right.\right.$$
$$\left.l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\left\{(644-644\,p^2+45\,p^4)+105\,(1-p^2)\,l(1-p^2)\right\}\mathrm{F}'(p)-$$
$$\left.-3\,(2-p^2)\left\{46+\frac{15}{2}\,l(1-p^2)\right\}\mathrm{E}'(p)\right].$$

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8) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^3 x \, . \, Cos^5 x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{225 p^8} \Big[4\{2(48-25p^2)+15(6-5p^2) l(1-p^2)\}$
$\frac{\pi}{\sqrt{1-p^2}} - \Big\{(2144-1394p^2+45p^4)+\frac{15}{2}(44-29p^2) l(1-p^2)\Big\} F'(p) +$
$+ \Big\{2(688-69p^2)-\frac{15}{2}(4+3p^2) l(1-p^2)\Big\} E'(p) \Big]$.

9) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^3 x \, . \, Cos^7 x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{675 p^{10}} \Big[-72\{16+5(8-5p^2) l(1-p^2)\}$
$\pi\sqrt{1-p^2} + \{(14432-20864p^2+7092p^4-135p^6)+30(68-33p^2)(1-p^2)$
$l(1-p^2)\} F'(p) - \Big\{2(6064-5096p^2+207p^4)+\frac{15}{2}(112-44p^2+9p^4) l(1-p^2)\Big\} E'(p) \Big]$.

10) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^5 x \, . \, Cos x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{225 p^6 (1-p^2)^2} \Big[\Big\{(184-400p^2+225p^4)+$
$+\frac{15}{2}(8-20p^2+15p^4) l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{2(322-622p^2+285p^4)+$
$+\frac{15}{2}(14-15p^2)(1-p^2) l(1-p^2)\Big\} F'(p) + \{2(138-169p^2)+15(3-4p^2) l(1-p^2)\} E'(p) \Big]$.

11) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^5 x \, . \, Cos^3 x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{225 p^8 (1-p^2)} \Big[-\{16(24-25p^2)+$
$+15(24-40p^2+15p^4) l(1-p^2)\} \frac{\pi}{\sqrt{1-p^2}} + \Big\{(2144-2894p^2+795p^4)+$
$+\frac{15}{2}(44-15p^2)(1-p^2) l(1-p^2)\Big\} F'(p) - \Big\{2(688-619p^2)-\frac{15}{2}(4-7p^2) l(1-p^2)\Big\} E'(p) \Big]$.

12) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^5 x \, . \, Cos^5 x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{675 p^{10}} \Big[12\{2(48-25p^4)+15(16-20p^2+5p^4)$
$l(1-p^2)\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{2(7216-7216p^2+1455p^4)+\frac{15}{2}(272-272p^2+45p^4)$
$l(1-p^2)\Big\} F'(p) + 4(2-p^2)\{1516-105 \, l(1-p^2)\} E'(p) \Big]$.

13) $\int l(1-p^2 \, Sin^2 x) \frac{Sin^7 x \, . \, Cos x}{\sqrt{1-p^2 \, Sin^2 x}^7} x \, dx = \frac{1}{225 p^8 (1-p^2)^2} \Big[3 \Big\{(128-200p^2+75p^6)+$
$+\frac{15}{2}(16-40p^2-30p^4-5p^6) l(1-p^2)\Big\} \frac{\pi}{\sqrt{1-p^2}} - \Big\{(2144-4394p^2+2445p^4-225p^6)+$
$+\frac{15}{2}(44-45p^2)(1-p^2) l(1-p^2)\Big\} F'(p) + \Big\{2(688-1169p^2+450p^4)-$
$-\frac{15}{2}(4-17p^2+15p^4) l(1-p^2)\Big\} E'(p) \Big]$.

F. Alg. rat. ent.;
Logar. $l(1-p^2 \,Sin^2 x)$; TABLE 428, suite. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2\,Sin^2 x}^7$; $[p^2<1]$.

$$14)\int l(1-p^2\,Sin^2 x)\frac{Sin^7 x\,.\,Cos^3 x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{675\,p^{10}(1-p^2)}\Big[-3\,\{8(48-75p^4+25p^6)+$$
$$+15(64-120p^2+60p^4-5p^6)\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}}+\{(14432-22432p^2+$$
$$+8660p^4-525p^6)+30(68-35p^2)(1-p^2)\,l(1-p^2)\}\,F'(p)-\Big\{2(6064-7032p^2+$$
$$+1175p^4)-\frac{15}{2}(112-156p^2+35p^4)\,l(1-p^2)\Big\}\,E'(p)\Big].$$

$$15)\int l(1-p^2\,Sin^2 x)\frac{Sin^9 x\,.\,Cos\,x}{\sqrt{1-p^2\,Sin^2 x}^7}\,x\,dx=\frac{1}{675\,p^{10}(1-p^2)^2}\Big[3\Big\{(384-1200p^4+$$
$$+800p^6+25p^8)+\frac{15}{2}(128-320p^2+240p^4-40p^6-5p^8)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-$$
$$-\Big\{2(7216-15216p^2+8955p^4-925p^6-75p^8)+\frac{15}{2}(272-280p^2+5p^4)$$
$$(1-p^2)\,l(1-p^2)\Big\}\,F'(p)+\{2(6064-11032p^2-4700p^4+175p^6)-$$
$$-15(56-128p^2+70p^4+5p^6)\,l(1-p^2)\}\,E'(p)\Big].$$

Sur 1) à 15) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. $l(1-p^2\,Cos^2 x)$; TABLE 429. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2\,Cos^2 x}^7$; $[p^2<1]$.

$$1)\int l(1-p^2\,Cos^2 x)\frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^7}\,x\,dx=\frac{1}{225\,p^2(1-p^2)^2}\Big[-9(1-p^2)^2\pi-$$
$$-\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\,F'(p)+$$
$$+(2-p^2)\{62+15\,l(1-p^2)\}\,E(p)\Big].$$

$$2)\int l(1-p^2\,Cos^2 x)\frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2\,Cos^2 x}^7}\,x\,dx=\frac{1}{225\,p^4(1-p^2)^2}\Big[16(1-p^2)^2\pi+$$
$$+\Big\{(44-119p^2+45p^4)-\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\,F'(p)-\Big\{2(38-69p^2)+$$
$$+\frac{15}{2}(1-3p^2)\,l(1-p^2)\Big\}\,E'(p)\Big].$$

F. Alg. rat. ent.;
Logar. $l(1-p^2\,Cos^2\,x)$; TABLE 429, suite. Lim. 0 et $\frac{\pi}{2}$.
Circ. Dir. en dén. $\sqrt{1-p^2\,Cos^2\,x}^7$; $[p^2<1]$.

$$3)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x\,.\,Cos^5\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{225\,p^6\,(1-p^2)^2}\Big[-184\,(1-p^2)^2\,\pi+$$
$$+\Big\{2\,(322-622\,p^2+285\,p^4)+\frac{15}{2}\,(14-15\,p^2)\,(1-p^2)\,l(1-p^2)\Big\}\,\mathrm{F}'(p)-$$
$$-\{2\,(138-169\,p^2)+15\,(3-4\,p^2)\,l(1-p^2)\}\,\mathrm{E}'(p)\Big].$$

$$4)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x\,.\,Cos^7\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{225\,p^8\,(1-p^2)^2}\Big[16\,(1-p^2)^2\,\pi+$$
$$+\Big\{(2144-4394\,p^2+2445\,p^4-225\,p^6)+\frac{15}{2}\,(44-45\,p^2)\,(1-p^2)\,l(1-p^2)\Big\}\,\mathrm{F}'(p)+$$
$$+\Big\{-2\,(688-1169\,p^2+450\,p^4)+\frac{15}{2}\,(4-17\,p^2+15\,p^4)\,l(1-p^2)\Big\}\,\mathrm{E}'(p)\Big].$$

$$5)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin\,x\,.\,Cos^9\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{675\,p^{10}\,(1-p^2)^2}\Big[16\,(1-p^2)^2\,\pi+$$
$$+\Big\{2\,(7216-15216\,p^2+8955\,p^4-925\,p^6-75\,p^8)+\frac{15}{2}\,(272-280\,p^2+5\,p^4)$$
$$(1-p^2)\,l(1-p^2)\Big\}\,\mathrm{F}'(p)+\{-2\,(6064-11032\,p^2+4700\,p^4+175\,p^6)+$$
$$+15\,(56-128\,p^2+70\,p^4+5\,p^6)\,l(1-p^2)\}\,\mathrm{E}\,(p)\Big].$$

$$6)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin^3\,x\,.\,Cos\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{225\,p^4\,(1-p^2)}\Big[-(16+9\,p^2)\,(1-p^2)\,\pi+$$
$$+\Big\{-(44+31\,p^2-30\,p^4)+\frac{15}{2}\,(1-p^2)\,l(1-p^2)\Big\}\,\mathrm{F}'(p)+\Big\{2\,(38+31\,p^2)+$$
$$+\frac{15}{2}\,(1+2\,p^2)\,l(1-p^2)\Big\}\,\mathrm{E}'(p)\Big].$$

$$7)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin^3\,x\,.\,Cos^3\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{225\,p^6\,(1-p^2)}\Big[8\,(23+2\,p^2)\,(1-p^2)\,\pi-$$
$$-\{(644-644\,p^2+45\,p^4)+105\,(1-p^2)\,l(1-p^2)\}\,\mathrm{F}'(p)+$$
$$+3\,(2-p^2)\,\Big\{46+\frac{15}{2}\,l(1-p^2)\Big\}\,\mathrm{E}'(p)\Big].$$

$$8)\int l(1-p^2\,Cos^2\,x)\,\frac{Sin^3\,x\,.\,Cos^5\,x}{\sqrt{1-p^2\,Cos^2\,x}^7}\,x\,dx=\frac{1}{225\,p^8\,(1-p^2)}\Big[-8\,(23+2\,p^2)\,(1-p^2)\,\pi-$$
$$-\Big\{(2144-2894\,p^2+795\,p^4)+\frac{15}{2}\,(44-15\,p^2)\,(1-p^2)\,l(1-p^2)\Big\}\,\mathrm{F}'(p)+$$
$$+\Big\{2\,(688-619\,p^2)-\frac{15}{2}\,(4-7\,p^2)\,l(1-p^2)\Big\}\,\mathrm{E}'(p)\Big].$$

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9) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^3 x\, .\, Cos^7 x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{675\, p^{10}(1-p^2)}\Big[-16(1-3p^2)(1-p^2)\pi - \\ -\{(14432-22432p^2+8660p^4-525p^6)+30(68-35p^2)(1-p^2)\, l(1-p^2)\}\, F'(p)+ \\ +\Big\{2(6064-7032p^2+1175p^4)-\frac{15}{2}(112-156p^2+35p^4)\, l(1-p^2)\Big\}\, E'(p)\Big].$$

10) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^5 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{225\, p^6}\Big[-(184+32p^2+9p^4)\pi + \\ +\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\, l(1-p^2)\Big\}\, F'(p) - \{2(138+31p^2)+ \\ +15(3+p^2)\, l(1-p^2)\}\, E'(p)\Big].$$

11) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^5 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{225\, p^8}\Big[8(1+p^2)(23-12p^2)\pi + \\ +\Big\{(2144-1394p^2+45p^4)+\frac{15}{2}(44-29p^2)\, l(1-p^2)\Big\}\, F'(p) + \\ +\Big\{-2(688-69p^2)+\frac{15}{2}(4+3p^2)\, l(1-p^2)\Big\}\, E'(p)\Big].$$

12) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^5 x\, .\, Cos^5 x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{675\, p^{10}}\Big[8(2-75p^2+6p^4)\pi + \\ +\Big\{2(7216-7216p^2+1455p^4)+\frac{15}{2}(272-272p^2+45p^4)\, l(1-p^2)\Big\}\, F'(p) - \\ -4(2-p^2)\{1516+105\, l(1-p^2)\}\, E'(p)\Big].$$

13) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^7 x\, .\, Cos\, x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{225\, p^8}\Big[-(184+272p^2-64p^4+9p^6)\pi - \\ -\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\, l(1-p^2)\Big\}\, F'(p) + \\ +\Big\{2(688-207p^2+31p^4)-\frac{15}{2}(4+9p^2+2p^4)\, l(1-p^2)\Big\}\, E'(p)\Big].$$

14) $$\int l(1-p^2\, Cos^2 x)\frac{Sin^7 x\, .\, Cos^3 x}{\sqrt{1-p^2\, Cos^2 x}^7}\, x\, dx = \frac{1}{675\, p^{10}}\Big[-8(69+31p^2+39p^4-6p^6)\pi - \\ -\{14432-20864p^2+7092p^4-135p^6)+30(68-33p^2)(1-p^2)\, l(1-p^2)\}\, F'(p) + \\ +\{2(6064-5096p^2+207p^4)+\frac{15}{2}(112-44p^2+9p^4)\, l(1-p^2)\}\, E'(p)\Big].$$

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F. Alg. rat. ent.;
Logar. $l(1-p^2 \, Cos^2 x)$;
Circ. Dir. en dén. $\sqrt{1-p^2 \, Cos^2 x}^{\,7}$; $[p^2<1]$.

TABLE 429, suite.

Lim. 0 et $\frac{\pi}{2}$.

$$15) \int l(1-p^2 Cos^2 x) \frac{Sin^9 x . Cos x}{\sqrt{1-p^2 Cos^2 x}^{\,7}} x\,dx = \frac{1}{675 p^{10}} \Big[(552-304p^2-584p^4+144p^6-27p^8)\pi +$$

$$+ \Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8) + \frac{15}{2}(272-264p^2-3p^4)(1-p^2)$$

$$l(1-p^2)\Big\} F'(p) - \{2(6064-7160p^2+828p^4-93p^6)+30(56-18p^2-18p^4-3p^6)$$

$$l(1-p^2)\} E'(p)\Big].$$

Sur 1) à 15) voyez M, D. 16, 28.

F. Alg. rat. ent.;
Logar. d'autre forme;
Circul. Directe.

TABLE 430.

Lim. 0 et $\frac{\pi}{2}$.

$$1) \int l\,Sin x . x^{p-1}\,dx = -\frac{1}{p}\left(\frac{\pi}{2}\right)^p \left\{1 - \sum_1^\infty \frac{2}{p+2m} \sum_1^\infty \frac{1}{(4n^2)^m}\right\}$$ V. T. 205, N. 7.

$$2) \int l(1-Cos x) . x^{p-1}\,dx = \frac{1}{2p}\left(\frac{\pi}{2}\right)^p \left\{l2 + 2 - \sum_1^\infty \frac{4}{p+2m} \sum_1^\infty \frac{1}{(4n)^{2m}}\right\}$$ V. T. 204, N. 6.

$$3) \int l\,Sin x \frac{x\,dx}{Tg x} = -\frac{\pi}{4}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$$ V. T. 305, N. 19.

$$4) \int l\,Tg x \frac{Sin^2 x . Tg x}{p^4 Cos^4 x - q^4 Sin^4 x} x\,dx = \frac{\pi}{32 p^4 q^4}\, l \frac{q^4}{(p+q)^2 (p^2+q^2)}$$ V. T. 208, N. 18.

$$5) \int \left\{\frac{p\,l(1+p\,Sin^2 x)}{1-p^2 Sin^2 x} + \frac{2}{1+p\,Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x\,dx = \frac{1}{p}\, l\left(\frac{\sqrt{p}}{2(1+p)}\right) . F'(p) +$$

$$+ \frac{\pi}{4p} F'\{\sqrt{1-p^2}\} + \frac{\pi}{p\sqrt{1-p^2}}\, l(1+p)$$ V. T. 325, N. 4.

$$6) \int \left\{\frac{p\,l(1-p\,Sin^2 x)}{1-p^2 Sin^2 x} - \frac{2}{1-p\,Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x\,dx = \frac{1}{p}\, l\left(\frac{\sqrt{p}}{2(1-p)}\right) . F'(p) +$$

$$+ \frac{\pi}{4p} F'\{\sqrt{1-p^2}\} + \frac{\pi}{p\sqrt{1-p^2}}\, l(1-p)$$ V. T. 325, N. 5.

$$7) \int \left\{\frac{l(1-p^2 Sin^2\lambda . Sin^2 x)}{1-p^2 Sin^2 x} - \frac{2\,Sin^2\lambda}{1-p^2 Sin^2\lambda . Sin^2 x}\right\} \frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}} x\,dx = \frac{1}{p^2}\Big\{4F'(p)\Upsilon(p,\lambda) -$$

$$- 2E'(p) . \{F(p,\lambda)\}^2 + \frac{\pi}{\sqrt{1-p^2}}\, l(1-p^2 Sin^2\lambda)\Big\}$$ V. T. 325, N. 9.

8) $\int\left\{\frac{l(1-p^2 Sin^4 x)}{1-p^2 Sin^2 x}-\frac{4 Sin^2 x}{1-p^2 Sin^4 x}\right\}\frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}}x\,dx=\frac{1}{p^2}l\left(\frac{p}{4(1-p^2)}\right).F'(p)+$
$+\frac{\pi}{2p^2}F'\{\sqrt{1-p^2}\}+\frac{\pi}{p^2\sqrt{1-p^2}}l(1-p^2)$ V. T. 325, N. 10.

9) $\int\left\{l\left(\frac{1-q\sqrt{1-p^2 Sin^2 x}}{1+q\sqrt{1-p^2 Sin^2 x}}\right)+\frac{2q(1-p^2 Sin^2 x)}{1-q^2+p^2 q^2 Sin^2 x}\right\}\frac{Sin 2x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=$
$=\frac{2\pi}{p^2}F\{\sqrt{1-p^2}, Arcsin q\}+\frac{\pi}{p^2\sqrt{1-p^2}}l\frac{1-q\sqrt{1-p^2}}{1+q\sqrt{1-p^2}}$ V. T. 325, N. 11.

10) $\int\{1+p^2 Sin^2 x.(l Sin x-1)\}\frac{Cot x}{\sqrt{1-p^2 Sin^2 x}^3}x\,dx=\frac{1}{2}F'(p).lp+\frac{\pi}{4}F'\{\sqrt{1-p^2}\}$
V. T. 322, N. 3.

11) $\int\frac{Cos^2 x+2 Sin^2 x.l Sin x}{(l Cosec x)^{\frac{3}{2}}}\frac{x\,dx}{Sin x}=2\sqrt{\pi}-\pi\sqrt{2}$ V. T. 329, N. 3.

12) $\int\frac{Sin x}{l Cos x}x\,dx=-\sum_0^\infty\frac{1^{n/1}}{2^{n/2}}\frac{l(2n+2)}{2n+1}$ (VIII, 543).

13) $\int\frac{Sin x}{l Cos x}x^2\,dx=-\sum_1^\infty\frac{2^{n/2}}{3^{n/2}}\frac{l(2n+1)}{n}$ (VIII, 543).

F. Alg. rat.;
Logarithm. de | Dén. $x^2+(l Cos x)^2$. TABLE 431. Lim. 0 et $\frac{\pi}{2}$.
Circul. Directe.

1) $\int\frac{Tg x}{x^2+(l Cos x)^2}x\,dx=\frac{\pi}{2\,l2}$ V. T. 431, N. 5.

2) $\int\frac{l Cos x}{x^2+(l Cos x)^2}dx=\frac{\pi}{2}\left(1-\frac{1}{l2}\right)$ V. T. 431, N. 4.

3) $\int\frac{Cos 2ax.l Cos x+x Sin 2ax}{x^2+(l Cos x)^2}dx=\frac{1}{2}\pi$ (IV, 531).

4) $\int\frac{Cos(p Tg x).l Cos x+x Sin(p Tg x)}{x^2+(l Cos x)^2}dx=\frac{\pi}{2}\left(1-\frac{e^{-p}}{l2}\right)$ V. T. 485, N. 2.

5) $\int\frac{Sin(p Tg x).l Cos x-x Cos(p Tg x)}{x^2+(l Cos x)^2}Tg x\,dx=-\frac{\pi}{2\,l2}e^{-p}$ V. T. 485, N. 3.

6) $\int\frac{l Cos x}{x^2+(l Cos x)^2}\frac{dx}{1+Cos 2x}=\infty$ V. T. 431, N, 10.

7) $\int\frac{l Cos x}{x^2+(l Cos x)^2}\frac{dx}{1-Cos 2x}=\frac{\pi}{4}$ V. T. 431, N. 10.

8) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2} \frac{x\,dx}{1-Cos\,2x} = \infty$ V. T. 431, N. 11.

9) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2} \frac{x\,dx}{1+Cos\,2x} = \frac{\pi}{2\,l2}$ V. T. 431, N. 11.

10) $\int \frac{l\,Cos\,x}{x^2+(l\,Cos\,x)^2} \frac{dx}{1-2p\,Cos\,2x+p^2} = \frac{1}{2}\frac{\pi}{p^2-1}\left\{\frac{1}{l2-l(1+p)} - \frac{1+p}{1-p}\right\} [p^2 \leqq 1], =$

$= \frac{1}{2}\frac{\pi}{p^2-1}\left\{\frac{p+1}{p-1} - \frac{1}{l(2p)-l(1+p)}\right\} [p^2>1]$ (IV, 531).

11) $\int \frac{Sin\,2x}{x^2+(l\,Cos\,x)^2} \frac{x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{4p}\left\{\frac{1}{l2-l(1+p)} - \frac{1}{l2}\right\} [p^2 \leqq 1], =$

$= \frac{\pi}{p}\left\{\frac{1}{l2} - \frac{1}{l(1+p)-l2p}\right\} [p^2>1]$ (IV, 532).

12) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{1-2p\,Cos\,2x+p^2}\,x\,dx = \frac{\pi}{8p}\,l(1+p)$.

13) $\int \frac{Sin\,qrx\,.\,l\,Cos\,x - x\,Cos\,qrx}{x^2+(l\,Cos\,x)^2} \frac{Cos^r\,x\,.\,Sin\,x}{1-2p\,Cos\,2x+p^2}\,dx = \frac{\pi}{2p\,l\frac{1+p}{2}}\left(\frac{1+p^q}{2}\right)^r + \frac{\pi}{p\,2^r\,l2}$.

14) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2} \frac{x\,dx}{1-2p\,Cos\,2x+p^2} = \frac{\pi}{8p(l2)^2} - \frac{\pi}{8p\left\{l\frac{2}{1+p}\right\}^2} + \frac{\pi}{2(1-p)^2}$.

16) $\int \frac{Tg\,x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx = \frac{\pi}{4}\left(1-\frac{1}{(l2)^2}\right)$. 15) $\int \frac{Sin\,2x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx = \frac{\pi}{2}\left(1-\frac{1}{2(l2)^3}\right)$.

17) $\int \frac{Sin\,4x\,.\,l\,Cos\,x}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,dx = \pi\left(1-\frac{3-l2}{8(l2)^4}\right)$.

Sur 11) à 16) voyez Svanberg, N. A. Ups. 10, 231.

18) $\int \frac{(l\,Cos\,x)^2+2x\,Tg\,x\,.\,l\,Cos\,x-x^2}{\{x^2+(l\,Cos\,x)^2\}^2}\,l\,Cos\,x.dx = \frac{\pi}{2\,l2}$ V. T. 431, N. 1.

19) $\int \frac{(l\,Cos\,x)^2-2x\,Cot\,x\,.\,l\,Cos\,x-x^2}{\{x^2+(l\,Cos\,x)^2\}^2}\,x\,Tg\,x.dx = \pi\frac{1-l2}{2\,l2}$ V. T. 431, N. 2.

F. Algébr. rat.; Logarithmique de Circulaire Directe. | TABLE 432. | Lim. 0 et π.

1) $\int l\,Sin\,x\,.\,x\,dx = -\frac{1}{2}\pi^2\,l2$ (VIII, 257). 2) $\int l\,Cos^2\,x\,.\,x\,dx = -\pi^2\,l2$ (VIII, 257).

3) $\int l\,Tg^2\,x\,.\,x\,dx = 0$ (VIII, 257). 4) $\int l((Sin\,x))\,.\,x\,dx = -\frac{1}{2}\pi^2\,l2 + \alpha\pi^3 i$ (VIII, 258).

5) $\int l((-Sin\,x)).x\,dx = -\frac{1}{2}\pi^2\,l2 + \frac{2\alpha+1}{2}\pi^3\,i$ (VIII, 258).

6) $\int l\,Sin\,x.(3\pi-2x)x^2\,dx = -\pi^4\,l4$ (VIII, 258).

7) $\int l(1-2p\,Cos\,2x+p^2).Sin\left\{(2a-1)x\right\}.x^{2b+1}\,dx = 0$ (IV, 532).

8) $\int l(1-2p\,Cos\,2x+p^2).Cos\left\{(2a-1)x\right\}.x^{2b}\,dx = 0$ (IV, 532).

9) $\int l(1-2p\,Cos\,2x+p^2).Sin\,2ax.Sin\,x.x^{2b}\,dx = 0$ V. T. 432, N. 8.

10) $\int l(1-2p\,Cos\,2x+p^2).Sin\,2ax.Cos\,x.x^{2b+1}\,dx = 0$ V. T. 432, N. 7.

11) $\int l(1-2p\,Cos\,2x+p^2).Cos\,2ax.Sin\,x.x^{2b+1}\,dx = 0$ V. T. 432, N. 7.

12) $\int l(1-2p\,Cos\,2x+p^2).Cos\,2ax.Cos\,x.x^{2b}\,dx = 0$ V. T. 432, N. 8.

13) $\int l(1-2r\,Cos\,x+r^2).Sin\,ax.x^{2b+1}\,dx = \frac{(-1)^{b+1}\pi r^a}{a^{2b+2}}\,1^{2b+1/1}\sum_0^{2b-1}\frac{(-a\,lr)^n}{1^{n/1}}$ (IV, 533).

14) $\int l(1-2r\,Cos\,x+r^2).Cos\,ax.x^{2b}\,dx = \frac{(-1)^{b+1}\pi r^a}{a^{2b+1}}\,1^{2b/1}\sum_0^{2b}\frac{(-a\,lr)^n}{1^{n/1}}$ (IV, 533).

[Dans 7) à 10) on a $0<p<1, r^2<1$].

F. Algébr.; Logarithmique; Circulaire Directe. TABLE 433. Lim. diverses.

1) $\int_0^{2a\pi} l((Sin\,x)).x\,dx = -2a^2\pi^2\,l2 + a\left\{(4\alpha+1)a+\frac{1}{2}\right\}\pi^3\,i$ (VIII, 282).

2) $\int_0^{(2a+1)\pi} l((Sin\,x)).x\,dx = -\frac{(2a+1)^2}{2}\pi^2\,l2 + \frac{1}{4}(2a+1)\left\{(2a+1)(4\alpha+1)-1\right\}\pi^3\,i$ (VIII, 282).

3) $\int_0^{2a\pi} l((Cos\,x)).x\,dx = -2a^2\pi^2\,l2 - a\left(4a\alpha+\frac{1}{4}\right)\pi^2\,i$ (VIII, 283).

4) $\int_0^{(2a+1)\pi} l((Cos\,x)).x\,dx = -\frac{(2a+1)^2}{2}\pi^2\,l2 - \frac{2a+1}{4}\left\{(2a+1)4\alpha-\frac{3}{2}\right\}\pi^3\,i$ (VIII, 283).

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5) $\int_{\frac{\pi}{2}}^{(2a+\frac{1}{2})\pi} l((Sin\, x)) . x\, dx = -(2a+1)a\pi^2\, l2 - a\left\{(2a+1)2\alpha+\frac{1}{4}\right\}\pi^3 i$ (VIII, 284).

6) $\int_{\frac{\pi}{2}}^{(2a-\frac{1}{2})\pi} l((Sin\, x)) . x\, dx = -(2a-1)a\pi^2\, l2 - \frac{1}{4}\left\{(2a-1)8a\alpha-3a+\frac{1}{2}\right\}\pi^3 i$ (VIII, 284).

7) $\int_0^{2a\pi} l(1+2p\, Cos\, x+p^2) . x^b\, dx = \sum_0^{b-1}\left\{1^{n/1}\binom{b}{n}(2a\pi)^{b-n} Cos\left(\frac{n+1}{2}\pi\right) . \sum_1^{\infty}\frac{p^m}{m^{n+2}}\right\}$ $[p^2<1]$ (IV, 541).

8) $\int_0^{\lambda}\left\{2x+l\left(\frac{1+Sin\, x}{1-Sin\, x}\right)\right\}\frac{dx}{\sqrt{(Cos^2 x - Cos^2\lambda)(1-Cos^2\lambda . Cos^2 x)}} = \pi\, Cosec\, \Phi . \mathrm{F}(p,\Phi)$ (IV, 541).

9) $\int_0^{\lambda}\left\{2x\, Cos\, x - l\left(\frac{1+Sin\, x}{1-Sin\, x}\right)\right\}\frac{Cos\, x}{Sin^2 x . \sqrt{(Cos^2 x - Cos^2\lambda)(1-Cos^2\lambda . Cos^2 x)}}\, dx =$

$= \frac{\pi\, Cos^2\lambda}{Sin\,\lambda . Sin\,\Phi}\mathrm{F}(p,\Phi) - \frac{\pi\, Sin\,\Phi}{Sin^4\lambda}\mathrm{E}(p,\Phi) + \frac{\pi\, Cos\,\lambda}{Sin^2\lambda}$ (IV, 541).

[Dans 8) et 9) on a $Cos\,\Phi = Cos^2\lambda$, $p = Sin\,\lambda . Cosec\,\Phi$].

F. Alg.; Logarithm.; Circul. Directe. Intégr. Lim. [Lim. $k=\infty$]. TABLE 434. Lim. diverses.

1) $\int_0^{\infty} l\, Sin\, kx\frac{dx}{p^2+x^2} = -\frac{\pi}{2p}l2$ (VIII, 380).

2) $\int_0^{\infty} l\, Cos\, kx\frac{dx}{p^2+x^2} = -\frac{\pi}{2p}l2$ (VIII, 380). 3) $\int_0^{\infty} l\, Tg\, kx\frac{dx}{p^2+x^2} = 0$ V. T. 434, N. 1, 2.

4) $\int_0^{\frac{\pi}{2}}\frac{Cos^k x}{x^2+(l\, Cos\, x)^2}\,\frac{x\, Sin\, kx + Cos\, kx . l\, Cos\, x}{1-2p\, Cos\, 2x+p^2}\, dx = \frac{\pi}{2(1-p)^2}$ $[p^2<1]$ IV, 532).

5) $\int_0^{\frac{\pi}{2}}\frac{Cos^k x . Sin\, 2x}{x^2+(l\, Cos\, x)^2}\,\frac{Sin\, kx . l\, Cos\, x - x\, Cos\, kx}{1-2p\, Cos\, 2x+p^2}\, dx = 0$ $[p^2<1]$ (IV, 532).

F. Algébr. rat.; Logarithmique en num.; Circulaire Inverse. TABLE 435. Lim. 0 et 1.

1) $\int Arcsin\, x . (2a\, lx+1)x^{2a-1}\, dx = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left(l2+\sum_1^{2a}\frac{(-1)^n}{n}\right)$ V. T. 118, N. 5.

2) $\int Arcsin\, x . \{(2a+1)lx+1\}x^{2a}\, dx = \frac{2^{a|2}}{1^{a+1/2}}\left(l2+\sum_1^{2a+1}\frac{(-1)^n}{n}\right)$ V. T. 118, N. 6.

3) $\int Arcsin\,x\,.\,l\,x\,\frac{dx}{x} = -\frac{\pi}{4}\left\{(l2)^2 + \frac{1}{12}\pi^2\right\}$ V. T. 118, N. 13.

4) $\int Arcsin\,x\,.\,l\,(1+qx^2)\,.\,x\,dx = \frac{\pi}{4}\left\{\frac{q+2}{q}\,l\,\frac{2\,(1+q)}{1+\sqrt{1+q}} - \frac{\sqrt{1+q}}{1+\sqrt{1+q}}\right\}\ [q^2<1]$

V. T. 120, N. 7, T. 229, N. 2 et T. 231, N. 1.

5) $\int Arcsin\,x\,.\,l(px+1)\frac{dx}{x^2} = \frac{1}{8}\pi^2 - \frac{1}{2}\,(Arccos\,p)^2 - \frac{\pi}{2}\,l(1+p) + \frac{1}{2}\,p\,\pi\,.\,l\,\frac{1+\sqrt{1+p}}{\sqrt{1+p}}$

V. T. 120, N. 2 et T. 235, N. 10.

6) $\int Arcsin\,x\,.\,l\left(\frac{1+qx}{1-qx}\right)\frac{dx}{x^2} = \frac{\pi}{2}\,l\left(\frac{1-q}{1+q}\right) + \pi\,q\,l\,\frac{1+\sqrt{1-q^2}}{\sqrt{1-q^2}} + \pi\,Arcsin\,q$

V. T. 122, N. 2 et T. 235, N. 10.

7) $\int Arcsin\,x.\left\{\frac{1+qx^2}{(1-qx^2)^2}\,l\left(\frac{1+px}{1-px}\right) + \frac{2p}{1-x^2}\,\frac{x}{1-p^2x^2}\right\}dx = \frac{\pi}{2\,(1-q)}\,l\,\frac{1+p}{1-p} +$

$+\frac{\pi}{\sqrt{q(1-q)}}\,l\,\frac{p\sqrt{q} - \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q} + \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

8) $\int Arccos\,x.\left\{\frac{1+qx^2}{(1-qx^2)^2}\,l\left(\frac{1+px}{1-px}\right) + \frac{2p}{1-qx^2}\,\frac{x}{1-p^2x^2}\right\}dx =$

$=\frac{\pi}{\sqrt{q(1-q)}}\,l\,\frac{p\sqrt{q} + \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}{p\sqrt{q} - \{1-\sqrt{1-q}\}\{1-\sqrt{1-p^2}\}}$ V. T. 122, N. 8.

9) $\int Arccos\,x\,.\,\{1+2\,a\,l\,x\}\,x^{2a-1}\,dx = \frac{3^{a-1/2}}{2^{a/2}}\,\frac{\pi}{2}\left(-l2 + \sum_{1}^{2a}\frac{(-1)^{n-1}}{n}\right)$ V. T. 118, N. 5.

10) $\int Arccos\,x\,.\,\{1+(2a+1)\,l\,x\}\,x^{2a}\,dx = \frac{2^{a/2}}{1^{a+1/2}}\left(-l2 + \sum_{1}^{2a+1}\frac{(-1)^{n-1}}{n}\right)$ V. T. 118, N. 6.

11) $\int Arccos\,x\,.\,l(1+qx^2)\,.\,x\,dx = \frac{\pi}{4}\left\{\frac{q+2}{q}\,l\,\frac{1+\sqrt{1+q}}{2} - \frac{\sqrt{1+q}}{1+\sqrt{1+q}}\right\}\ [q^2<1]$

V. T. 120, N. 7, T. 229, N. 5 et T. 231, N. 12.

12) $\int Arctg\,x\,.\,l\,x\,\frac{dx}{x} = -\frac{1}{32}\pi^3$ V. T. 109, N. 3.

13) $\int Arctg\,x\,.\,(l\,x)^3\,\frac{dx}{x} = -\frac{5}{256}\pi^5$ V. T. 109, N. 17.

14) $\int Arctg\,x\,.\,(l\,x)^5\,\frac{dx}{x} = -\frac{61}{1536}\pi^7$ V. T. 109, N. 25.

15) $\int Arctg\,x\,.(lx)^{q-1}\,\frac{dx}{x}=\frac{1}{q}\,Cos\,q\,\pi.\Gamma(q+1)\sum_1^\infty\frac{(-1)^{n+1}}{(2n+1)^{q+1}}$ V. T. 110, N. 11.

16) $\int\frac{Arctg\,(lx)}{1-x^{-p}}\,\frac{dx}{x}=\frac{1}{2p}\left\{2\pi\,l\,\Gamma\left(\frac{p}{2\pi}+1\right)-\pi\,lp+p\left(1-l\frac{p}{2\pi}\right)\right\}$ V. T. 282, N. 3.

17) $\int l(1+x).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=\frac{1}{2}\,l2-\frac{\pi}{4}+\frac{3\pi}{8}\,l2.$

18) $\int l(1-x).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=\frac{1}{2}\,l2-\frac{\pi}{4}+\frac{\pi}{8}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

19) $\int l(1+x^2).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=l2+\frac{1}{16}\,\pi^2-\frac{\pi}{2}+\frac{\pi}{4}\,l2.$

20) $\int l(1-x^2).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=l2-\frac{\pi}{2}+\frac{\pi}{2}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

21) $\int l(1-x^4).\left(Arctg\,x+\frac{x}{1+x^2}\right)dx=2\,l2+\frac{1}{16}\,\pi^2-\pi+\frac{3\pi}{4}\,l2+\sum_0^\infty\frac{(-1)^{n-1}}{(2n+1)^2}.$

Sur 17) à 21) voyez M, II, D. 1.

F. Alg. irrat. à dén. $\sqrt{1-p^2x^2}^{\,a}$;
Logar. en num. $l(1-p^2x^2)$; TABLE 436. Lim. 0 et 1.
Circ. Inverse $Arcsin\,x$; $[p^2<1]$.

1) $\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{p^2}\left[\left\{1-\frac{1}{2}\,l(1-p^2)\right\}\pi\sqrt{1-p^2}+(2-p^2)\,F'(p)-\right.$
$\left.-\left\{4-\frac{1}{2}\,l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. 3.

2) $\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x^3\,dx}{\sqrt{1-p^2x^2}}=\frac{1}{27p^4}\left[2\left\{(8+p^2)-\frac{3}{2}(2+p^2)\,l(1-p^2)\right\}\pi\sqrt{1-p^2}+\right.$
$+\left\{(32-5p^2-6p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)-\left\{2(40+7p^2)-\right.$
$\left.\left.-\frac{3}{2}(5+2p^2)\,l(1-p^2)\right\}E'(p)\right]$ V. T. 426, N. 5.

3) $\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x\,dx}{\sqrt{1-p^2x^2}^{\,3}}=\frac{1}{p^2}\left[\left\{1+\frac{1}{2}\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$
$\left.-\left\{2+\frac{1}{2}\,l(1-p^2)\right\}F'(p)\right]$ V. T. 426, N. 9.

4) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{p^4}\left[\left\{p^2+\frac{1}{2}(2-p^2)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\right.$$
$$\left.-\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}F'(p)+\left\{4-\frac{1}{2}l(1-p^2)\right\}E'(p)\right]$$ V. T. 426, N. 12.

5) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^3}=\frac{1}{27p^6}\left[3\left\{(8-16p^2-p^4)+\right.\right.$$
$$\left.+\frac{3}{2}(8-4p^2-p^4)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}-\left\{2(70-16p^2-3p^4)+\right.$$
$$\left.\left.+\frac{3}{2}(10-p^2)\,l(1-p^2)\right\}F'(p)+\{2(94+7p^2)-3(7+p^2)\,l(1-p^2)\}E'(p)\right]$$
V. T. 426, N. 14.

6) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\left[\left\{1+\frac{3}{2}l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\right.$$
$$\left.+3(2-p^2)F'(p)-\left\{8+\frac{3}{2}l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 1.

7) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^4(1-p^2)}\left[-\left\{(8-9p^2)+\right.\right.$$
$$\left.+\frac{3}{2}(2-3p^2)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+3\left\{(8-7p^2)+\frac{3}{2}(1-p^2)\,l(1-p^2)\right\}F'(p)-$$
$$\left.-\left\{8+\frac{3}{2}l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 5.

8) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{9p^6(1-p^2)}\left[-\left\{(8-9p^2)+\right.\right.$$
$$\left.+\frac{3}{2}(8-12p^2+3p^4)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+3\{(20-22p^2+3p^4)+$$
$$\left.+3(1-p^2)\,l(1-p^2)\}F'(p)+\left\{-4(11-9p^2)+\frac{3}{2}(2-3p^2)\,l(1-p^2)\right\}E'(p)\right]$$
V. T. 427, N. 8.

9) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{27p^8(1-p^2)}\left[-3\left\{p^2(24-24p^2-p^4)+\right.\right.$$
$$\left.+\frac{3}{2}(16-24p^2+6p^4+p^6)\,l(1-p^2)\right\}\frac{\pi}{\sqrt{1-p^2}}+\left\{(320-370p^2+53p^4+6p^6)+\right.$$
$$\left.+\frac{3}{2}(28-p^2)(1-p^2)\,l(1-p^2)\right\}F'(p)+\left\{-2(160-141p^2-7p^4)+\right.$$
$$\left.\left.+\frac{3}{2}(20-21p^2-2p^4)\,l(1-p^2)\right\}E'(p)\right]$$ V. T. 427, N. 10.

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10) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[\Big\{1+\frac{5}{2}l(1-p^2)\Big\}\frac{9\pi}{\sqrt{1-p^2}}+$$
$$+\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-$$
$$-(2-p^2)\{62+15\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 1.

11) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x^3\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^4(1-p^2)^2}\Big[-\Big\{(16-25p^2)+$$
$$+\frac{15}{2}(2-5p^2)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}+\Big\{-(44-119p^2+45p^4)+$$
$$+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(38-69p^2)+\frac{15}{2}(1-3p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$
V. T. 428, N. 6.

12) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x^5\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^6(1-p^2)^2}\Big[\Big\{(184-400p^2+225p^4)+$$
$$+\frac{15}{2}(8-20p^2+15p^4)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-\Big\{2(322-622p^2+285p^4)+$$
$$+\frac{15}{2}(14-15p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\{2(138-169p^2)+$$
$$+15(3-4p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 10.

13) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x^7\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^8(1-p^2)^2}\Big[3\Big\{(128-200p^2+75p^6)+$$
$$+\frac{15}{2}(16-40p^2-30p^4-5p^6)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-\Big\{(2144-4394p^2+2445p^4-225p^6)+$$
$$+\frac{15}{2}(44-45p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(688-1169p^2+450p^4)-$$
$$-\frac{15}{2}(4-17p^2+15p^4)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 428, N. 13.

14) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,\frac{x^9\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{675p^{10}(1-p^2)^2}\Big[3\Big\{384-1200p^4+800p^6+25p^8)+$$
$$+\frac{15}{2}(128-320p^2+240p^4-40p^6-5p^8)\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-\Big\{2(7216-15216p^2+$$
$$+8955p^4-925p^6-75p^8)+\frac{15}{2}(272-280p^2+5p^4)(1-p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\{2(6064-11032p^2-4700p^4+175p^6)-15(56-128p^2+70p^4+5p^6)\,l(1-p^2)\}E'(p)\Big]$$
V. T. 428, N. 15.

1) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{p^2}\Big[-\pi-(2-p^2)F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 6.

2) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{27p^4}\Big[3(8-9p^2)\pi+\Big\{(32-59p^2+21p^4)+\frac{3}{2}(1-p^2)l(1-p^2)\Big\}F'(p)-\Big\{2(40-47p^2)-\frac{3}{2}(5-7p^2)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 8.

3) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^2}\Big[-\pi+\Big\{2+\frac{1}{2}l(1-p^2)\Big\}F'(p)\Big]$$ V. T. 426, N. 15.

4) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^4}\Big[-p^2\pi-\Big\{(4-3p^2)+\frac{1}{2}(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{4-\frac{1}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 18.

5) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{27p^6}\Big[3(8-9p^4)\pi+\Big\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)l(1-p^2)\Big\}F'(p)+\Big\{-2(94-101p^2)+\frac{3}{2}(7-8p^2)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 20.

6) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\Big[-(1-p^2)\pi-3(2-p^2)F'(p)+\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 11.

7) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^4}\Big[-(8+p^2)\pi+3\Big\{(8-p^2)+\frac{3}{2}l(1-p^2)\Big\}F'(p)-\Big\{8+\frac{3}{2}l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 15.

8) $$\int Arcsin\, x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^6}\Big[(8-16p^2-p^4)\pi-3\{(20-18p^2+p^4)+3(1-p^2)l(1-p^2)\}F'(p)+\Big\{4(11-2p^2)-\frac{3}{2}(2+p^2)l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 18.

9) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^{5}}=\frac{1}{27p^8}\Big[3p^2(40-40p^2-p^4)\pi+$
$+\Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+$
$+\Big\{-2(160-179p^2+12p^4)+\frac{3}{2}(20-19p^2+3p^4)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$ V. T. 427, N. 20.

10) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^{7}}=\frac{1}{225p^2(1-p^2)^2}\Big[-9(1-p^2)^2\pi-$
$-\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+(2-p^2)\{62+15\,l(1-p^2)\}\mathrm{E}'(p)\Big]$
V. T. 429, N. 1.

11) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^{7}}=\frac{1}{225p^4(1-p^2)}\Big[-(16+9p^2)(1-p^2)\pi+$
$+\Big\{-(44+31p^2-30p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+\Big\{2(38+31p^2)+$
$+\frac{15}{2}(1+2p^2)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$ V. T. 429, N. 6.

12) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^{7}}=\frac{1}{225p^6}\Big[-(184+32p^2+9p^4)\pi+$
$+\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)-\{2(138+31p^2)+$
$+15(3+p^2)\,l(1-p^2)\}\mathrm{E}'(p)\Big]$ V. T. 429, N. 10.

13) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^{7}}=\frac{1}{225p^8}\Big[-(184+272p^2-64p^4+9p^6)\pi-$
$-\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+$
$+\Big\{2(688-207p^2+31p^4)-\frac{15}{2}(4+9p^2+2p^4)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$
V. T. 429, N. 13.

14) $\displaystyle\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2+p^2x^2}^{7}}=\frac{1}{675p^{10}}\Big[(552-304p^2-584p^4+$
$+144p^6-27p^8)\pi+\Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8)+$
$+\frac{15}{2}(272-264p^2-3p^4)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)-\Big\{2(6064-7160p^2+$
$+828p^4-93p^6)+30(56-18p^2-18p^4-3p^6)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$ V. T. 429, N. 15.

1) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x\,dx}{\sqrt{1-p^2 x^2}} = \frac{1}{p^2}\left[-\pi-(2-p^2)\mathrm{F}'(p)+\left\{4-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$$

V. T. 426, N. 6.

2) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x^3\,dx}{\sqrt{1-p^2 x^2}} = \frac{1}{27p^4}\left[-24\pi-\left\{(32-5p^2-6p^4)+\right.\right.$$
$$\left.\left.+\frac{3}{2}(1-p^2)l(1-p^2)\right\}\mathrm{F}'(p)+\left\{2(40+7p^2)-\frac{3}{2}(5+2p^2)l(1-p^2)\right\}\mathrm{E}'(p)\right]$$

V. T. 426, N. 7.

3) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x\,dx}{\sqrt{1-p^2 x^2}^3} = \frac{1}{p^2}\left[-\pi+\left\{2+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)\right]$$ V. T. 426, N. 15.

4) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x^3\,dx}{\sqrt{1-p^2 x^2}^3} = \frac{1}{p^4}\left[\left\{(4-p^2)+\frac{1}{2}l(1-p^2)\right\}\mathrm{F}'(p)-\right.$$
$$\left.-\left\{4-\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$$ V. T. 426, N. 16.

5) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x^5\,dx}{\sqrt{1-p^2 x^2}^3} = \frac{1}{27p^6}\left[24\pi+\left\{2(70-16p^2-3p^4)+\right.\right.$$
$$\left.\left.+\frac{3}{2}(10-p^2)l(1-p^2)\right\}\mathrm{F}'(p)-\{2(94+7p^2)-3(7+p^2)l(1-p^2)\}\mathrm{E}'(p)\right]$$ V. T. 426, N. 17.

6) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x\,dx}{\sqrt{1-p^2 x^2}^5} = \frac{1}{9p^2(1-p^2)}\left[-(1-p^2)\pi-3(2-p^2)\mathrm{F}'(p)+\right.$$
$$\left.+\left\{8+\frac{3}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$$ V. T. 427, N. 11.

7) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x^3\,dx}{\sqrt{1-p^2 x^2}^5} = \frac{1}{9p^4(1-p^2)}\left[8(1-p^2)\pi-3\left\{(8-7p^2)+\right.\right.$$
$$\left.\left.+\frac{3}{2}(1-p^2)l(1-p^2)\right\}\mathrm{F}'(p)+\left\{8+\frac{3}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$$ V. T. 427, N. 12.

8) $$\int Arccos\, x \,.\, l(1-p^2 x^2) \frac{x^5\,dx}{\sqrt{1-p^2 x^2}^5} = \frac{1}{9p^6(1-p^2)}\left[8(1-p^2)\pi-3\left\{(20-22p^2+3p^4)+\right.\right.$$
$$\left.\left.+3(1-p^2)l(1-p^2)\right\}\mathrm{F}'(p)+\left\{4(11-9p^2)-\frac{3}{2}(2-3p^2)l(1-p^2)\right\}\mathrm{E}'(p)\right]$$

V. T. 427, N. 13.

9) $$\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^5}=\frac{1}{27p^8(1-p^2)}\Big[-\Big\{(320-370p^2+53p^4+6p^6)+$$
$$+\frac{3}{2}(28-p^2)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+\Big\{2(160-141p^2-7p^4)-$$
$$-\frac{3}{2}(20-21p^2-2p^4)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$$ V. T. 427, N. 14.

10) $$\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[-9(1-p^2)^2\pi-$$
$$-\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+$$
$$+(2-p^2)\{62+15\,l(1-p^2)\}\mathrm{E}'(p)\Big]$$ V. T. 429, N. 1.

11) $$\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^4(1-p^2)^2}\Big[16(1-p^2)^2\pi+$$
$$+\Big\{(44-119p^2+45p^4)-\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)-\Big\{2(38-69p^2)+$$
$$+\frac{15}{2}(1-3p^2)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$$ V. T. 429, N. 2.

12) $$\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^6(1-p^2)^2}\Big[-184(1-p^2)^2\pi+$$
$$+\Big\{2(322-622p^2+285p^4)+\frac{15}{2}(14-15p^2)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)-$$
$$-\{2(138-169p^2)+15(3-4p^2)\,l(1-p^2)\}\mathrm{E}'(p)\Big]$$ V. T. 429, N. 3.

13) $$\int Arccos\, x\,.\,l(1-p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{225p^8(1-p^2)^2}\Big[16(1-p^2)^2\pi+$$
$$+\Big\{(2144-4394p^2+2445p^4-225p^6)+\frac{15}{2}(44-45p^2)(1-p^2)\,l(1-p^2)\Big\}\mathrm{F}'(p)+$$
$$+\Big\{-2(688-1169p^2+450p^4)+\frac{15}{2}(4-17p^2+15p^4)\,l(1-p^2)\Big\}\mathrm{E}'(p)\Big]$$

V. T. 429, N. 4.

14) $$\int Arccos\,x\,.\,l(1-p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2x^2}^7}=\frac{1}{675p^{10}(1-p^2)^2}\Big[16(1-p^2)^2\pi+$$
$$+\Big\{2(7216-15216p^2+8955p^4-925p^6-75p^8)+\frac{15}{2}(272-280p^2+5p^4)$$
$$(1-p^2)\,l(1-p^2)\Big\}F'(p)+\{-2(6064-11032p^2+4700p^4+175p^6)+$$
$$+15(56-128p^2+70p^4+5p^6)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 429, N. 5.

F. Alg. irrat. à dén. $\sqrt{1-p^2+p^2x^2}^a$;
Logar. en num. $l(1-p^2+p^2x^2)$; TABLE 439. Lim. 0 et 1.
Circ. Inverse *Arccos x*; $[p^2<1]$.

1) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{p^2}\Big[\Big\{1-\frac{1}{2}\,l(1-p^2)\Big\}\pi\sqrt{1-p^2}+$$
$$+(2-p^2)F'(p)-\Big\{4-\frac{1}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 3.

2) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}}=\frac{1}{27p^4}\Big[-3\Big\{8-\frac{3}{2}(1-p^2)\Big\}\pi\sqrt{1-p^2}^3-$$
$$-\Big\{(32-59p^2+21p^4)+\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{2(40-47p^2)-$$
$$-\frac{3}{2}(5-7p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 426, N. 4.

3) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^2}\Big[\Big\{1+\frac{1}{2}\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-$$
$$-\Big\{2+\frac{1}{2}\,l(1-p^2)\Big\}F'(p)\Big]$$ V. T. 426, N. 9.

4) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{p^4}\Big[-l(1-p^2)\,.\,\pi\sqrt{1-p^2}+$$
$$+\Big\{(4-3p^2)+\frac{1}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{4-\frac{1}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$
V. T. 426, N. 10.

5) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^3}=\frac{1}{27p^6}\Big[-12\{2-3\,l(1-p^2)\}\pi\sqrt{1-p^2}^3-$$
$$-\Big\{2(70-124p^2+51p^4)+\frac{3}{2}(10-9p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+2\{(94-101p^2)-$$
$$-3(7-8p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 426, N. 11.

6) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^2(1-p^2)}\Big[\Big\{1+\frac{3}{2}\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}+$$
$$+3(2-p^2)F'(p)-\Big\{8+\frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 1.

7) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^4}\Big[\Big\{8+3\,l(1-p^2)\Big\}\frac{\pi}{\sqrt{1-p^2}}-$$
$$-3\Big\{(8-p^2)+\frac{3}{2}\,l(1-p^2)\Big\}F'(p)+\Big\{8+\frac{3}{2}\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 2.

8) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{9p^6}\Big[-4\{2+3\,l(1-p^2)\}\pi\sqrt{1-p^2}+$$
$$+3\{20-18p^2+p^4)+3(1-p^2)\,l(1-p^2)\}F'(p)-\Big\{4(11-2p^2)-$$
$$-\frac{3}{2}(2+p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 427, N. 3.

9) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^5}=\frac{1}{27p^8}\Big[72\,l(1-p^2).\pi\sqrt{1-p^2}^3-$$
$$-\Big\{(320-590p^2+273p^4-9p^6)+\frac{3}{2}(28-27p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+$$
$$+\{2(160-179p^2+12p^4)-\frac{3}{2}(20-19p^2-3p^4)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 427, N. 4.

10) $$\int Arccos\, x\,.\,l(1-p^2+p^2x^2)\frac{x\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^2(1-p^2)^2}\Big[\Big\{1+\frac{5}{2}\,l(1-p^2)\Big\}$$
$$\frac{9\pi}{\sqrt{1-p^2}}+\Big\{2(53-53p^2+15p^4)+\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)$$
$$\{62+15\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 1.

11) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^3\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^4(1-p^2)}\Big[\{16+15\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}}+\Big\{(44+31p^2-30p^4)-\frac{15}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-\Big\{2(38+31p^2)+\frac{15}{2}(1+2p^2)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 428, N. 2.

12) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^5\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^6}\Big[4\{46+15\,l(1-p^2)\}\frac{\pi}{\sqrt{1-p^2}}-\Big\{2(322-22p^2-15p^4)+\frac{15}{2}(14+p^2)\,l(1-p^2)\Big\}F'(p)+\{2(138+31p^2)+15(3+p^2)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 3.

13) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^7\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{225p^8}\Big[-24\{16+15l(1-p^2)\}\pi\sqrt{1-p^2}+\Big\{(2144-2038p^2+89p^4+30p^6)+\frac{15}{2}(44+p^2)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\Big\{-2(688-207p^2+31p^4)+\frac{15}{2}(4+9p^2+2p^4)\,l(1-p^2)\Big\}E'(p)\Big]$$ V. T. 428, N. 4.

14) $$\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\frac{x^9\,dx}{\sqrt{1-p^2+p^2x^2}^7}=\frac{1}{675p^{10}}\Big[576\{2+5\,l(1-p^2)\}\pi\sqrt{1-p^2}^3-\Big\{2(7216-13648p^2+6603p^4-201p^6-45p^8)+\frac{15}{2}(272-264p^2-3p^4)(1-p^2)\,l(1-p^2)\Big\}F'(p)+\{2(6064-7160p^2+828p^4-93p^6)+30(56-18p^2-18p^4-3p^6)\,l(1-p^2)\}E'(p)\Big]$$ V. T. 428, N. 5.

F. Alg. irrat. d'autre forme;
Logarithme en num.; TABLE 440. Lim. 0 et 1.
Circulaire Inverse; $[p^2<1]$.

1) $$\int Arcsin\,x\,.\,l(1-p^2x^2)\,.\,x\,dx\sqrt{1-p^2x^2}=\frac{1}{27p^2}\Big[3\pi\Big\{1-\frac{3}{2}\,l(1-p^2)\Big\}\sqrt{1-p^2}^3+\Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$$ V. T. 426, N. 1.

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2) $\int Arcsin\,x\,.\,l(1-p^2+p^2x^2)\,.\,x\,dx\,\sqrt{1-p^2+p^2x^2}=\frac{1}{27p^2}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)-$
$-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$ V. T. 426, N. 2.

3) $\int Arcsin\,x\,.\,l\,x\frac{x\,dx}{\sqrt{1-x^2}^3}=\frac{1}{8}\pi^2-2\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ V. T. 243, N. 10 et T. 108, N. 11.

4) $\int(Arcsin\,x)^{q-1}.\,l\,x\frac{dx}{\sqrt{1-x^2}}=-\frac{1}{q}\left(\frac{\pi}{2}\right)^q\left\{1-\sum_1^\infty\frac{2}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 230, N. 2.

5) $\int Arccos\,x\,.\,l(1-p^2x^2)\,.\,x\,dx\,\sqrt{1-p^2x^2}=\frac{1}{27p^2}\Big[-3\pi-\Big\{2(11-11p^2+3p^4)-$
$-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)+(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$ V. T. 426, N. 2.

6) $\int Arccos\,x\,.\,l(1-p^2+p^2x^2)\,.\,x\,dx\,\sqrt{1-p^2+p^2x^2}=\frac{1}{27p^2}\Big[3\pi\Big\{1-\frac{3}{2}\,l(1-p^2)\Big\}\sqrt{1-p^2}^3+$
$+\Big\{2(11-11p^2+3p^4)-\frac{3}{2}(1-p^2)\,l(1-p^2)\Big\}F'(p)-(2-p^2)\{14-3\,l(1-p^2)\}E'(p)\Big]$
V. T. 426, N. 1.

7) $\int(Arccos\,x)^{q-1}\,l(1+x)\,\frac{dx}{\sqrt{1-x^2}}=\frac{1}{q}\left(\frac{\pi}{2}\right)^q\sum_1^\infty\frac{2^{2m}-1}{4^{m-1}}\,\frac{1}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}$ V. T. 233, N. 1.

8) $\int(Arccos\,x)^{q-1}\,l(1-x)\,\frac{dx}{\sqrt{1-x^2}}=\frac{1}{q}\left(\frac{\pi}{2}\right)^q\left\{-2+\sum_1^\infty\frac{1}{4^{m-1}}\,\frac{1}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 233, N. 2.

9) $\int(Arccos\,x)^{q-1}.\,l(1-x^2)\frac{dx}{\sqrt{1-x^2}}=\frac{2}{q}\left(\frac{\pi}{2}\right)^q\left\{-1+\sum_1^\infty\frac{2}{q+2m}\sum_1^\infty\frac{1}{(2n)^{2m}}\right\}$ V. T. 233, N. 5.

F. Algébrique; Logar. en dénom.; Circul. Inverse. TABLE 441. Lim. 0 et 1.

1) $\int Arctg\,x\frac{l\,x}{\{\pi^2+(l\,x)^2\}^2}\,\frac{dx}{x}=\frac{3-\pi}{8\pi}$ V. T. 129, N. 6.

2) $\int Arctg\,x\,\frac{l\,x}{\{\pi^2+(l\,x^2)^2\}^2}\,\frac{dx}{x}=\frac{l2-1}{32\pi}$ V. T. 129, N. 7.

3) $\int Arctg\,x\frac{l\,x}{\{q^2+(l\,x)^2\}^2}\,\frac{dx}{x}=\frac{1}{8q}\left\{-\frac{\pi}{q}+Z'\left(\frac{2q+3\pi}{4\pi}\right)-Z'\left(\frac{2q+\pi}{4\pi}\right)\right\}$ V. T. 129, N. 9.

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4) $\int Arccot\, x \dfrac{lx}{\{\pi^2+(lx)^2\}^2} \dfrac{dx}{x} = \dfrac{\pi-5}{8\pi}$ V. T. 129, N. 6.

5) $\int Arccot\, x \dfrac{lx}{\{\pi^2+(lx^2)^2\}^2} \dfrac{dx}{x} = -\dfrac{l2+1}{32\pi}$ V. T. 129, N. 7.

6) $\int Arccot\, x \dfrac{lx}{\{q^2+(lx)^2\}^2} \dfrac{dx}{x} = \dfrac{1}{8q}\left\{-\dfrac{\pi}{q} + Z'\left(\dfrac{2q+\pi}{4\pi}\right) - Z'\left(\dfrac{2q+3\pi}{4\pi}\right)\right\}$ V. T. 129, N. 9.

7) $\int \dfrac{Arccos\, x}{(Arccos\, x)^2+(lx)^2} \dfrac{dx}{x} = \dfrac{\pi}{2\,l2}$ V. T. 431, N. 1.

8) $\int \dfrac{Arccos\, x}{(Arccos\, x)^2+(lx)^2} \dfrac{x\,dx}{1-x^2} = \infty$ V. T. 431, N. 8.

9) $\int \dfrac{lx}{(Arccos\, x)^2+(lx)^2} \dfrac{1}{(1-p)^2-4px^2} \dfrac{dx}{\sqrt{1-x^2}} = \dfrac{1}{2} \dfrac{\pi}{p^2-1}\left\{\dfrac{1}{l2-l(1+p)} - \dfrac{1+p}{1-p}\right\} [p^2 \leqq 1], =$

$= \dfrac{1}{2} \dfrac{\pi}{p^2-1}\left\{\dfrac{p+1}{p-1} - \dfrac{1}{l(2p)-l(1+p)}\right\} [p^2>1]$ V. T. 431, N. 10.

10) $\int \dfrac{Arccos\, x}{(Arccos\, x)^2+(lx)^2} \dfrac{\pi}{(1-p)^2-4px^2} dx = \dfrac{\pi}{8p}\left\{\dfrac{1}{l2-l(1+p)} - \dfrac{1}{l2}\right\} [p^2 \leqq 1], =$

$= \dfrac{\pi}{2p}\left\{\dfrac{1}{l2} - \dfrac{1}{l(1+p)-l(2p)}\right\} [p^2>1]$ V. T. 431, N. 11.

11) $\int \dfrac{lx}{(Arccos\, x)^2+(lx)^2} \dfrac{dx}{\sqrt{1-x^2}} = \dfrac{\pi}{2}\left(1-\dfrac{1}{l2}\right)$ V. T. 431, N. 2.

12) $\int \dfrac{lx}{(Arccos\, x)^2+(lx)^2} \dfrac{dx}{\sqrt{1-x^2}^3} = \dfrac{1}{2}\pi$ V. T. 431, N. 7.

13) $\int \dfrac{lx}{(Arccos\, x)^2+(lx)^2} \dfrac{dx}{x^2\sqrt{1-x^2}} = \infty$ V. T. 431, N. 6.

F. Algébrique;
Logarithme; TABLE 442. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Arctg\, x . (lx)^{2a-1} \dfrac{dx}{x} = \infty$ V. T. 135, N. 3.

2) $\int Arctg\, px . lx \dfrac{x\,dx}{(q^2+x^2)^2} = \dfrac{1}{2q^2} l(1+pq) + \dfrac{p\pi}{2q(1+pq)}\left\{lp + \dfrac{1}{1-pq} l(pq)\right\}$

V. T. 135, N. 5 et T. 250, N. 3.

3) $\int Arctg\frac{x}{p}.\, lx\, \frac{x\,dx}{(q^2-x^2)^2}=\frac{\pi}{8}\left\{\frac{\pi}{p}-\frac{1}{q^2}\,l\frac{p^2+q^2}{p^2}\right\}$ V. T. 135, N. 5, 6 et T. 250, N. 6.

4) $\int lx.\left\{\frac{1}{x^2}\,Arctg\frac{x}{q}\,.\,Arctg\frac{x}{p}-\frac{q}{x(q^2+x^2)}\,Arctg\frac{x}{p}-\frac{p}{x(p^2+x^2)}\,Arctg\frac{x}{q}\right\}dx=$

$=\frac{\pi}{2}\left\{\frac{1}{q}\,l\frac{p+q}{p}+\frac{1}{p}\,l\frac{p+q}{q}\right\}$ V. T. 247, N. 8.

5) $\int Arctg\left(\frac{px}{\sqrt{1+x^2}}\right).\, lx\,\frac{x\,dx}{\sqrt{1+x^2}^{\,3}}=\frac{\pi}{2}\,l\left\{p+\sqrt{1+p^2}\right\}-\frac{\pi}{4p\sqrt{1+p^2}}\,l(1+p^2)\,[p\geqq 1]$

V. T. 135, N. 5 et T. 252, N. 16.

6) $\int\left\{Arctg\,((l[px]))-Arctg\,((l[qx]))\right\}\frac{dx}{x}=\pi\,l\frac{p}{q}$ (VIII, 435).

7) $\int\left\{Arctg\,((r+s\,l[px]))-Arctg\,((r+s\,l[qx]))\right\}\frac{dx}{x}=\pi\,l\frac{p}{q}$ (VIII, 435).

8) $\int Arctg\,x\,.\,l(1+x^2)\frac{dx}{x^2}=\frac{1}{3}\pi^2$ (IV, 549).

9) $\int Arctg\frac{x}{q}.\,l(p^2+x^2)\,\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi}{2p(p^2-q^2)}\left\{\frac{1}{2}(p-q)+p\,l(p+q)-q\,l(2p)\right\}$

V. T. 136, N. 13 et T. 249, N. 3.

10) $\int Arctg\frac{x}{q}.\,l(p^2+x^2)\,\frac{x\,dx}{(p^2-x^2)^2}=\frac{\pi}{8p^2(p^2+q^2)}\left\{2(q^2-p^2)\,l(p+q)-\right.$

$\left.-(p^2+q^2)\,l(p^2+q^2)-4pq\,Arctg\frac{p}{q}\right\}$ V. T. 136, N. 13, 15 et T. 248, N. 5.

11) $\int Arctg\frac{x}{q}.\,l(p^2-x^2)^2\,\frac{dx}{(p^2+x^2)^2}=\frac{\pi}{4p^2(p^2-q^2)}\left\{(p^2+q^2)\,l(p^2+q^2)+\right.$

$\left.+(p^2-q^2)\,l(p+q)-2pq\,l(2p^2)\right\}$ V. T. 136, N. 16 et T. 248, N. 5.

12) $\int Arctg\frac{x}{q}.\,l(p^4-x^4)^2\,\frac{dx}{(p^2+x^2)^2}=\frac{\pi}{4p^2(p^2-q^2)}\left\{\frac{1}{2}p(p-q)+(p^2+q^2)\,l(p^2+q^2)+\right.$

$\left.+(2p^2-q^2)\,l(p+q)-pq\,l(8p^5)\right\}$ V. T. 442, N. 9, 11.

13) $\int Arccot\,x\,.\,l(1+x^2)\frac{dx}{x}=\frac{1}{6}\pi^2$ (IV, 550).

14) $\int Arccot\frac{x}{q}.\,l(p^2+x^2)\,\frac{x\,dx}{(p^2+x^2)^2}=\frac{\pi}{2p^2(p^2-q^2)}\left\{\frac{1}{2}q(p-q)+pq\,l2+\right.$

$\left.+(p^2+pq-q^2)\,lp-p^2\,l(p+q)\right\}$ V. T. 136, N. 13 et T. 249, N. 10.

15) $\int Arctg\,x\,.\,l\left(\frac{1+x}{\sqrt{x}}\right).\frac{dx}{1+x^2}=\frac{1}{16}\pi^2\,l2+\frac{\pi}{4}\sum_0^\infty\frac{(-1)^n}{(2n+1)^2}$ (VIII, 421).

F. Algébrique;
Logarithme;
Circulaire Inverse.

TABLE 443.

Lim. diverses.

1) $\int_1^\infty Arctg\,x\,.\,lx\,\frac{dx}{x^2}=\frac{\pi}{4}+\frac{1}{2}\,l2+\frac{1}{48}\,\pi^2$ V. T. 339, N. 4.

2) $\int_1^\infty Arccot\,x\,.\,lx\,\frac{dx}{x^2}=\frac{\pi}{4}-\frac{1}{2}\,l2-\frac{1}{48}\,\pi^2$ V. T. 339, N. 3.

3) $\int_1^\infty Arccot\,x\,.(lx)^2.(3-lx)\,\frac{dx}{x^2}=\frac{17}{1920}\,\pi^2$ V. T. 109, N. 9.

4) $\int_1^\infty Arccot\,x\,.(lx)^4.(5-lx)\,\frac{dx}{x}=\frac{31}{16128}\,\pi^6$ V. T. 109, N. 20.

5) $\int_1^\infty Arccot\,x\,.\,(lx)^{a-1}.\,(a-lx)\,\frac{dx}{x}=\frac{1^{a/1}}{2^{a+1}}\sum_0^\infty\frac{(-1)^n}{(n+1)^{a+1}}$ V. T. 110, N. 3.

6) $\int_0^{\sqrt{\frac{1}{2}}}(Arcsin\,x)^{p-1}.\,lx\,\frac{dx}{\sqrt{1-x^2}}=\frac{1}{2p}\left(\frac{\pi}{4}\right)^p\left\{-l2-2+\sum_1^\infty\frac{4}{p+2m}\sum_1^\infty\frac{1}{(4n)^{2m}}\right\}$

V. T. 254, N. 12.

7) $\int_{\sqrt{\frac{1}{2}}}^1(Arccos\,x)^{p-1}.\,l(1-x^2)\,\frac{dx}{\sqrt{1-x^2}}=\frac{1}{p}\left(\frac{\pi}{4}\right)^p\left\{l2-2+\sum_1^\infty\frac{4}{p+2m}\sum_1^\infty\frac{1}{(4n)^{2m}}\right\}$

V. T. 254, N. 14.

F. Algébrique;
Logarithme;
Autre Fonction.

TABLE 444.

Lim. diverses.

1) $\int_0^1 li(x)\,.\left(l\frac{1}{x}\right)^{p-1}\frac{dx}{x}=-\frac{1}{p}\,\Gamma(p)\;[0\leqq p\leqq 1]$ (VIII, 542).

2) $\int_0^1 li(x)\,.\left(l\frac{1}{x}\right)^{p-1}\frac{dx}{x^2}=-\pi\,Cosec\,p\pi\,.\,\Gamma(p)\;[0\leqq p\leqq 1]$ V. T. 400, N. 2.

3) $\int_0^1 li(x)\,\frac{x^{p-1}}{\sqrt{l\frac{1}{x}}}\,dx=-2\sqrt{\frac{\pi}{p}}\,.\,l\{\sqrt{p}+\sqrt{1+p}\}\;[p>0]$ V. T. 283, N. 5.

4) $\int_0^1 li(x)\,\frac{dx}{x^{p+1}\sqrt{l\frac{1}{x}}}=-2\sqrt{\frac{\pi}{p}}\,.\,Arcsin(\sqrt{p})\;[p<1]$ V. T. 283, N. 6.

5) $\int_0^1 li(x).\,(lx)^{p-1}\,\frac{dx}{x^2}=-\pi\,Cot\,p\pi\,.\,\Gamma(p)$ V. T. 400, N. 1.

F. Algébr. rat. fract. à dén. mon.; Circ. Directe ration.; Circ. Inverse. — TABLE 445. — Lim. 0 et ∞.

1) $\int Arctg\frac{x}{q}.Cos px\frac{dx}{x}=-\frac{\pi}{2}\,li\,(e^{-pq})$ (VIII, 358).

2) $\int Arctg\left\{\frac{q\mp\frac{1}{q}}{1\pm x^2}\,x\right\}.\,Cos\,x\,\frac{dx}{x}=\frac{\pi}{2}\left\{\pm li(e^{-q})+li\left(e^{-\frac{1}{q}}\right)\right\}$ (VIII, 358).

3) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right)\frac{dx}{x}=\frac{\pi}{2}\,l\,\frac{1+p}{1-p}\,[p^2<1]$

4) $\int Arctg\left(\frac{p\,Sin\,x}{1+p\,Cos\,x}\right)\frac{dx}{x}=\pi\,l(1+p)\,[p^2<1]$ Sur 3) et 4) voyez Bronwin, Mathem. I. 197.

5) $\int Arctg\left(\frac{2p\,Cos^2x}{1-p^2\,Cos^2x}\right)\frac{Sin\,x}{q^2\,Sin^2x+r^2\,Cos^2x}\,\frac{dx}{x}=\frac{1}{r^2}\,Arctg\left(\frac{pq}{q+r}\right)$ (VIII, 414).

6) $\int Arctg\left(\frac{2p\,Cos^2x}{1-p^2\,Cos^2x}\right)\frac{Tg\,x}{q^2\,Sin^2x+r^2\,Cos^2x}\,\frac{dx}{x}=\frac{1}{r^2}\,Arctg\left(\frac{pq}{q+r}\right)$ (VIII, 414).

7) $\int Arctg\left(\frac{2p\,Cos^2 2x}{1-p^2\,Cos^2 2x}\right)\frac{Tg\,x}{q^2\,Sin^2 2x+r^2\,Cos^2 2x}\,\frac{dx}{x}=\frac{1}{r^2}\,Arctg\left(\frac{pq}{q+r}\right)$ (VIII, 415).

8) $\int Arctg\left(\frac{2p\,Sin^2x}{1-p^2\,Sin^2x}\right)\frac{Sin\,x}{q^2\,Sin^2x+r^2\,Cos^2x}\,\frac{dx}{x}=\frac{1}{q^2}\,Arctg\left(\frac{pr}{q+r}\right)$ (VIII, 415).

9) $\int Arctg\left(\frac{2p\,Sin^2x}{1-p^2\,Sin^2x}\right)\frac{Tg\,x}{q^2\,Sin^2x+r^2\,Cos^2x}\,\frac{dx}{x}=\frac{1}{q^2}\,Arctg\left(\frac{pr}{q+r}\right)$ (VIII, 415).

10) $\int Arctg\left(\frac{2p\,Sin^2 2x}{1-p^2\,Sin^2 2x}\right)\frac{Tg\,x}{q^2\,Sin^2 2x+r^2\,Cos^2 2x}\,\frac{dx}{x}=\frac{1}{q^2}\,Arctg\left(\frac{pr}{q+r}\right)$ (VIII, 415).

F. Algébr. rat. fract. à dén. binôme; Circ. Directe ration.; Circ. Inverse; $[r^2<1]$. — TABLE 446. — Lim. 0 et ∞.

1) $\int Arctg(rx).Sin\,px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,e^{-pq}\left\{\frac{1}{2}\,l\left(\frac{1+qr}{1-qr}\right)^2+Ei\left(pq-\frac{p}{r}\right)\right\}-\frac{\pi}{4q}\,e^{pq}\,Ei\left(-pq-\frac{p}{r}\right)$ (VIII, 453).

2) $\int Arctg\left(\frac{x}{q}\right).Sin\,px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\,e^{-pq}\left\{A+l(2pq)\right\}-\frac{\pi}{4q}\,e^{pq}\,Ei(-2pq)$ (VIII, 454).

3) $\int Arctg(rx).Cos\,px\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,e^{-pq}\left\{\frac{1}{2}\,l\left(\frac{1-qr}{1+qr}\right)^2-Ei\left(pq-\frac{p}{r}\right)\right\}-\frac{\pi}{4}\,e^{pq}\,Ei\left(-pq-\frac{p}{r}\right)$ (VIII, 454).

4) $\int Arctg\left(\frac{x}{q}\right).Cos\,p\,x\frac{x\,dx}{q^2+x^2}=-\frac{\pi}{4}e^{-pq}\{A+l(2pq)\}-\frac{\pi}{4}e^{pq}Ei(-2pq)$ (VIII, 454).

5) $\int Arctg(Tg\,x)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}l\frac{e^{2q}+1}{e^{2q}}$ (IV, 555).

6) $\int Arctg(Cot\,x)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}l\frac{e^{2q}}{e^{2q}-1}$ (IV, 555).

7) $\int Arctg\left(\frac{2p\,Cos\,x}{1-p^2}\right)\frac{dx}{q^2+x^2}=\frac{\pi}{q}Arctg(pe^{-q})$ Bronwin, Mathem. 1. 197.

8) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}l(1+re^{-qs})$ (VIII, 499).

9) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,p\,x\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}-e^{-pq})\,l(1+re^{-qs})-$
$-\frac{\pi}{4q}e^{pq}\overset{d}{\underset{1}{\Sigma}}\frac{(-r)^n}{n}e^{-nqs}+\frac{\pi}{4q}e^{-pq}\overset{d}{\underset{0}{\Sigma}}\frac{(-r)^n}{n}e^{nqs}$ (VIII, 499).

10) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Cos\,p\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}(e^{pq}+e^{-pq})\,l(1+re^{-qs})-\frac{\pi}{4}e^{pq}\overset{d}{\underset{1}{\Sigma}}\frac{(-r)^n}{n}e^{-nqs}-$
$-\frac{\pi}{4}e^{-pq}\overset{d}{\underset{1}{\Sigma}}\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{fraction.}\right],=\frac{\pi}{4}(e^{pq}+e^{-pq})\,l(1+re^{-qs})-\frac{\pi}{4}e^{pq}\overset{d-1}{\underset{1}{\Sigma}}\frac{(-r)^n}{n}e^{-nqs}-$
$-\frac{\pi}{4}e^{-pq}\overset{d}{\underset{1}{\Sigma}}\frac{(-r)^n}{n}e^{nqs}\left[\frac{p}{s}\text{ entier}\right]\left[\text{où } d=\mathcal{E}\frac{p}{s}\right]$ (VIII, 499).

11) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}\,l(1+re^{-qs})\,[s>2a],=$
$=\frac{(-1)^a\pi}{2^{2a+1}}\{(e^q-e^{-q})^{2a}\,l(1+re^{-qs})-r\}\,[s=2a]$ (V, 112).

12) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,p\,x.Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}$
$(e^{pq}-e^{-pq})\,l(1+re^{-qs})\,[p<s-2a-1],=\frac{(-1)^{a-1}\pi}{2^{2a+3}}\{(e^q-e^{-q})^{2a+1}$
$(e^{pq}-e^{-pq})\,l(1+re^{-qs})-r\}\,[p=s-2a-1]$ (V, 115).

13) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,p\,x.Cos^a x\frac{dx}{q^2+x}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^a(e^{pq}-e^{-pq})\,l(1+re^{-qs})$
$[p\leqq s-a]$ (V, 113).

14) $\int Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right). Cos\, p\, x\, .\, Sin^{2a} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq})\, l(1+re^{-qs})$

$[p < s-2a], = \frac{(-1)^a \pi}{2^{2a+2}} \{(e^q - e^{-q})^{2a} (e^{pq} + e^{-pq})\, l(1+re^{-qs}) - r\}\ [p = s-2a]$

(V, 113).

15) $\int Arctg\left(\frac{r^2\, Sin\, a\, x}{1-r^2\, Cos\, a\, x}\right). Sin^{2a} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+1}} (e^q - e^{-q})^{2a}\, l(1-r^2 e^{-aq})$ (V, 114).

16) $\int Arctg\left(\frac{r^2\, Sin\, s\, x}{1-r^2\, Cos\, s\, x}\right). Sin\, p\, x\, .\, Sin^{2a+1} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+3}} (e^q - e^{-q})^{2a+1}$

$(e^{pq} - e^{-pq})\, l(1-r^2 e^{-qs}) \left[p = \frac{1}{2} s - 2a - 1\right]$ (V, 114).

17) $\int Arctg\left(\frac{r^2\, Sin\, s\, x}{1-r^2\, Cos\, s\, x}\right). Cos\, p\, x\, .\, Sin^{2a} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} (e^q - e^{-q})^{2a}$

$(e^{pq} + e^{-pq})\, l(1-r^2 e^{-qs}) \left[p = \frac{1}{2} s - 2a\right]$ (V, 114).

18) $\int Arctg\left(\frac{2r\, Sin\, s\, x}{1-r^2}\right). Sin^{2a} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} (e^q - e^{-q})^{2a}\, l\frac{1+re^{-qs}}{1-re^{-qs}}\ [s > 2a], =$

$= \frac{(-1)^a \pi}{2^{2a+1}} \left\{(e^q - e^{-q})^{2a}\, l\frac{1+re^{-qs}}{1-re^{-qs}} - 2r\right\} [s = 2a]$ (V, 114).

19) $\int Arctg\left(\frac{2r\, Sin\, s\, x}{1-r^2}\right). Sin\, p\, x\, .\, Sin^{2a+1} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^{a-1} \pi}{2^{2a+3}} (e^q - e^{-q})^{2a+1}$

$(e^{pq} - e^{-pq})\, l\frac{1+re^{-qs}}{1-re^{-qs}} [p < s-2a-1], = \frac{(-1)^{a-1} \pi}{2^{2a+3}} \left\{(e^q - e^{-q})^{2a+1} (e^{pq} - e^{-pq})\right.$

$\left. l\frac{1+re^{-qs}}{1-re^{-qs}} - 2r\right\} [p = s-2a-1]$ (V, 114).

20) $\int Arctg\left(\frac{2r\, Sin\, s\, x}{1-r^2}\right). Sin\, p\, x\, .\, Cos^a x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{a+2} q} (e^q + e^{-q})^a (e^{pq} - e^{-pq})\, l\frac{1+re^{-qs}}{1-re^{-qs}}$

$[p \leqq s-a]$ (V, 114).

21) $\int Arctg\left(\frac{2r\, Sin\, s\, x}{1-r^2}\right). Cos\, p\, x\, .\, Sin^{2a} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+2}} (e^q - e^{-q})^{2a} (e^{pq} + e^{-pq})\, l\frac{1+re^{-qs}}{1-re^{-qs}}$

$[p < s-2a], = \frac{(-1)^a \pi}{2^{2a+2}} \left\{(e^q - e^{-q})^{2a} (e^{pq} + e^{-pq})\, l\frac{1+re^{-qs}}{1-re^{-qs}} - 2r\right\} [p = s-2a]$

(V, 114).

22) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{4}\,l(1+2\,r\,Cos\,q\,s+r^2)$ (VIII, 509).

23) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Sin\,p\,x\frac{dx}{q^2-x^2} = -\frac{\pi}{4\,q}Sin\,p\,q\,.\,l(1+2\,r\,Cos\,q\,s+r^2) -$

$-\frac{\pi}{2\,q}\sum_1^d\frac{(-r)^n}{n}Sin\{(p-n\,s)q\}$ (VIII, 509).

24) $\int Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right).Cos\,p\,x\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{4}Cos\,p\,q\,.\,l(1+2\,r\,Cos\,q\,s+r^2) -$

$-\frac{\pi}{2}\sum_1^d\frac{(-r)^n}{n}Cos\{(p-n\,s)q\}\left[\frac{p}{s}\text{ fraction.}\right], = -\frac{\pi}{4}Cos\,p\,q\,.\,l(1+2\,r\,Cos\,q\,s+r^2) -$

$-\frac{\pi}{4\,d}(-r)^d - \frac{\pi}{2}\sum_1^d\frac{(-r)^n}{n}Cos\{(p-n\,s)q\}\left[\frac{p}{s}\text{ entier}\right]$ (VIII, 509).

Dans 23) et 24) on a $d = \mathcal{E}\frac{p}{s}$.

25) $\int Arctg\left(\frac{2\,r\,Cos\,x}{1-r^2}\right)\frac{dx}{q^2-x^2} = \frac{\pi}{4\,q}\,l\frac{1-2\,r\,Sin\,q+r^2}{1+2\,r\,Sin\,q+r^2}$ Bronwin, Mathem. I. 197.

26) $\int Cos^{p-1}\left(Arctg\frac{x}{q}\right).Sin\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Sin\,r\,x\frac{dx}{q^2+x^2} = \frac{\pi\,q^{p-1}\,r^p\,e^{-q\,r}}{2\,\Gamma(p+1)}$ V. T. 43, N. 12.

27) $\int Cos^{p-1}\left(Arctg\frac{x}{q}\right).Cos\left\{(p+1)\,Arctg\frac{x}{q}\right\}.Cos\,r\,x\frac{dx}{q^2+x^2} = \frac{\pi\,q^{p-1}\,r^p\,e^{-q\,r}}{2\,\Gamma(p+1)}$ V. T. 43, N. 13.

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2\,Sin^2\,x}$; TABLE 447. Lim. 0 et ∞.
Circ. Inv. $Arctg\{Tg\,\lambda.\sqrt{1-p^2\,Sin^2\,x}\}$; $[p^2 < 1]$.

1) $\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2\,x}\}.Sin\,x.\sqrt{1-p^2\,Sin^2\,x}\frac{dx}{x} = \frac{\pi}{2}E(p,\lambda) - \frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2\,Sin^2\lambda}\}$ (VIII, 413).

2) $\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2\,x}\}.Tg\,x.\sqrt{1-p^2\,Sin^2\,x}\frac{dx}{x} = \frac{\pi}{2}E(p,\lambda) - \frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2\,Sin^2\lambda}\}$ (VIII, 413).

3) $\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2\,2\,x}\}.Tg\,x.\sqrt{1-p^2\,Sin^2\,2\,x}\frac{dx}{x} = \frac{\pi}{2}E(p,\lambda) - \frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2\,Sin^2\lambda}\}$ (VIII, 413).

4) $\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2\,x}\}\frac{Sin\,x}{\sqrt{1-p^2\,Sin^2\,x}}\frac{dx}{x} = \frac{\pi}{2}F(p,\lambda)$ (VIII, 406).

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5) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x . Cos x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\} - \frac{\pi}{2p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

6) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\} + \frac{\pi}{2p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

7) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\} - \frac{\pi}{2p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

8) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Tg x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$$ (VIII, 406).

9) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x . Tg x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\{F(p,\lambda)-E(p,\lambda)\} + \frac{\pi}{2p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

10) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{\pi}{8p^2}\{F(p,\lambda)-E(p,\lambda)\} + \frac{\pi}{8p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

11) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Tg x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{\pi}{2} F(p,\lambda)$$ (VIII, 406).

12) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Cos^2 2x . Tg x}{\sqrt{1-p^2 Sin^2 2x}} \frac{dx}{x} = \frac{\pi}{2p^2}\{E(p,\lambda)-(1-p^2)F(p,\lambda)\} - \frac{\pi}{2p^2} Cot\lambda . \{1-\sqrt{1-p^2 Sin^2 \lambda}\}$$ (VIII, 406).

13) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2} E(p,\lambda) - \frac{\pi\, Tg\lambda}{2(1-p^2)}\{\sqrt{1-p^2 Sin^2 \lambda}-\sqrt{1-p^2}\}$$ (VIII, 407).

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14) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2} \{ \mathrm{F}(p,\lambda) - \mathrm{E}(p,\lambda) \} + \frac{\pi}{2p^2} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

15) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)} \{ \mathrm{E}(p,\lambda) - (1-p^2)\mathrm{F}(p,\lambda) \} - \frac{\pi}{2p^2(1-p^2)} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

16) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin\, x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2} \{ \mathrm{F}(p,\lambda) - \mathrm{E}(p,\lambda) \} + \frac{\pi}{2p^2} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

17) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2} \mathrm{E}(p,\lambda) - \frac{\pi}{2(1-p^2)} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

18) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 Sin^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)} \{ \mathrm{E}(p,\lambda) - (1-p^2)\mathrm{F}(p,\lambda) \} - \frac{\pi}{2p^2(1-p^2)} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

19) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{\pi}{8p^2(1-p^2)} \{ \mathrm{E}(p,\lambda) - (1-p^2)\mathrm{F}(p,\lambda) \} - \frac{\pi}{8p^2(1-p^2)} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

20) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Tg\, x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{1}{2} \frac{\pi}{1-p^2} \mathrm{E}(p,\lambda) - \frac{\pi}{2(1-p^2)} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

21) $$\int Arctg\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} \frac{Cos^2 2x . Tg\, x}{\sqrt{1-p^2 Sin^2 2x}^3} \frac{dx}{x} = \frac{\pi}{2p^2} \{ \mathrm{F}(p,\lambda) - \mathrm{E}(p,\lambda) \} + \frac{\pi}{2p^2} Tg\lambda . \{ \sqrt{1-p^2 Sin^2 \lambda} - \sqrt{1-p^2} \}$$ (VIII, 407).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 Sin^2 x}$; TABLE 448. Lim. 0 et ∞.
Circ. Inv. $Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\}$; $[p^2<1]$.

1) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} . Sin x . \sqrt{1-p^2 Sin^2 x}\frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 413).

2) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} . Tg x . \sqrt{1-p^2 Sin^2 x}\frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 413).

3) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 2x}\} . Tg x . \sqrt{1-p^2 Sin^2 2x}\frac{dx}{x} = \frac{\pi}{2} E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi}{2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 413).

4) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2} F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}$$ (VIII, 409).

5) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x . Cos x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} - \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 410).

6) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} + \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 409).

7) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2) F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} - \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 410).

8) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Tg x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2} F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}$$ (VIII, 410).

9) $$\int Arccot\{Tg\lambda . \sqrt{1-p^2 Sin^2 x}\} \frac{Sin^2 x . Tg x}{\sqrt{1-p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - E\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} + \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2 \lambda}} - 1\right\}$$ (VIII, 409).

$$10)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Sin^3 x.Cos x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{8p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi}{8p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}\text{ (VIII, 409).}$$

$$11)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Tg x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2}F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}$$
(VIII, 410).

$$12)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Cos^2 2x.Tg x}{\sqrt{1-p^2 Sin^2 2x}}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi}{2p^2}Cot\lambda.\Big\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\Big\}\text{ (VIII, 410).}$$

$$13)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi}{2\sqrt{1-p^2}}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}\text{ (VIII, 410).}$$

$$14)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}\text{ (VIII, 411).}$$

$$15)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^3 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}$$
$$\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-$$
$$-\frac{\pi}{2p^2\sqrt{1-p^2)}}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}\text{ (VIII, 410).}$$

$$16)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin x.Cos^2 x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg.\lambda\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}\text{ (VIII, 411).}$$

$$17)\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Tg x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi}{2\sqrt{1-p^2}}Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\Big\}\text{ (VIII, 410).}$$

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 \, Sin^2 x}$; TABLE 448, suite. Lim. 0 et ∞.
Circ. Inv. $Arccot\,\{Tg\lambda . \sqrt{1-p^2\,Sin^2 x}\}$; $[p^2<1]$.

18) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 x}\}\frac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 Sin^2 x}^3}\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\} \text{ (VIII, 410).}$$

19) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{\pi}{8p^2(1-p^2)}$$
$$\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-(1-p^2)F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-$$
$$-\frac{\pi\, Tg\lambda}{8p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\} \text{ (VIII, 410).}$$

20) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Tg\, x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{1}{2}\frac{\pi}{1-p^2}E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\} \text{ (VIII, 410).}$$

21) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2 Sin^2 2x}\}\frac{Cos^2 2x . Tg\, x}{\sqrt{1-p^2 Sin^2 2x}^3}\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}Tg\lambda.\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\} \text{ (VIII, 411).}$$

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2\,Cos^2 x}$; TABLE 449. Lim. 0 et ∞.
Circ. Inv. $Arctg\,\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}$; $[p^2<1]$.

1) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}.Sin\,x.\sqrt{1-p^2 Cos^2 x}\,\frac{dx}{x}=\frac{\pi}{2}E(p,\lambda)-$$
$$-\frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\} \text{ (VIII, 413).}$$

2) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}.Tg\,x.\sqrt{1-p^2 Cos^2 x}\,\frac{dx}{x}=\frac{\pi}{2}E(p,\lambda)-$$
$$-\frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\} \text{ (VIII, 413).}$$

3) $$\int Arctg\{Tg\lambda.\sqrt{1-p^2 Cos^2 2x}\}.Tg\,x.\sqrt{1-p^2 Cos^2 2x}\,\frac{dx}{x}=\frac{\pi}{2}E(p,\lambda)-$$
$$-\frac{\pi}{2}Cot\lambda.\{1-\sqrt{1-p^2 Sin^2\lambda}\} \text{ (VIII, 413).}$$

4) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin\, x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2} F(p,\lambda)$ (VIII, 408).

5) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin\, x . Cos\, x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \dfrac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

6) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \dfrac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

7) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin\, x . Cos^2 x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \dfrac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

8) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Tg\, x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2} F(p,\lambda)$ (VIII, 408).

9) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin^2 x . Tg\, x}{\sqrt{1-p^2 Cos^2 x}} \dfrac{dx}{x} = \dfrac{\pi}{2p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \dfrac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

10) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\} \dfrac{Sin^3 x . Cos\, x}{\sqrt{1-p^2 Cos^2 2x}} \dfrac{dx}{x} = \dfrac{\pi}{8p^2} \{E(p,\lambda) - (1-p^2) F(p,\lambda)\} -$

$- \dfrac{\pi}{8p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

11) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Tg\, x}{\sqrt{1-p^2 Cos^2 2x}} \dfrac{dx}{x} = \dfrac{\pi}{2} F(p,\lambda)$ (VIII, 408).

12) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Cos^2 2x . Tg\, x}{\sqrt{1-p^2 Cos^2 2x}} \dfrac{dx}{x} = \dfrac{\pi}{2p^2} \{F(p,\lambda) - E(p,\lambda)\} +$

$+ \dfrac{\pi}{2p^2} Cot\lambda . \{1 - \sqrt{1-p^2 Sin^2 \lambda}\}$ (VIII, 408).

13) $\int Arctg \{ Tg\lambda . \sqrt{1-p^2 Cos^2 x}\} \dfrac{Sin\, x}{\sqrt{1-p^2 Cos^2 x}^3} \dfrac{dx}{x} = \dfrac{1}{2} \dfrac{\pi}{1-p^2} E(p,\lambda) -$

$- \dfrac{\pi\, Tg\lambda}{2\sqrt{1-p^2}} \left\{ \sqrt{\dfrac{1-p^2 Sin^2 \lambda}{1-p^2}} - 1 \right\}$ (VIII, 409).

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14) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\right\} \frac{Sin\,x \, . \, Cos\,x}{\sqrt{1-p^2\,Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)}\left\{\mathrm{E}(p,\lambda)-(1-p^2)\mathrm{F}(p,\lambda)\right\} - \frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

15) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\right\} \frac{Sin^3 x}{\sqrt{1-p^2\,Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2}\left\{\mathrm{F}(p,\lambda)-\mathrm{E}(p,\lambda)\right\} + \frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

16) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\right\} \frac{Sin\,x \, . \, Cos^2 x}{\sqrt{1-p^2\,Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)}\left\{\mathrm{E}(p,\lambda)-(1-p^2)\mathrm{F}(p,\lambda)\right\} - \frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

17) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\right\} \frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2}\mathrm{E}(p,\lambda) - \frac{\pi\,Tg\lambda}{2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

18) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 x}\right\} \frac{Sin^2 x \, . \, Tg\,x}{\sqrt{1-p^2\,Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2}\left\{\mathrm{F}(p,\lambda)-\mathrm{E}(p,\lambda)\right\} + \frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

19) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\right\} \frac{Sin^3 x \, . \, Cos\,x}{\sqrt{1-p^2\,Cos^2 2x}^3} \frac{dx}{x} = \frac{\pi}{8p^2}\left\{\mathrm{F}(p,\lambda)-\mathrm{E}(p,\lambda)\right\} + \frac{\pi\,Tg\lambda}{8p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 408).

20) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\right\} \frac{Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2}\mathrm{E}(p,\lambda) - \frac{\pi\,Tg\lambda}{2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

21) $$\int Arctg\left\{Tg\lambda . \sqrt{1-p^2 \, Cos^2 2x}\right\} \frac{Cos^2 2x \, . \, Tg\,x}{\sqrt{1-p^2\,Cos^2 2x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)}\left\{\mathrm{E}(p,\lambda)-(1-p^2)\mathrm{F}(p,\lambda)\right\} - \frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{\sqrt{\frac{1-p^2\,Sin^2\lambda}{1-p^2}}-1\right\}$$ (VIII, 409).

1) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}.Sin x.\sqrt{1-p^2 Cos^2 x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 414).

2) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}.Tg x.\sqrt{1-p^2 Cos^2 x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 414).

3) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 2x}\right\}.Tg x.\sqrt{1-p^2 Cos^2 2x}\frac{dx}{x}=\frac{\pi}{2}\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-$
$-\frac{\pi}{2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 414).

4) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Sin x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2}\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}$
(VIII, 411).

5) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Sin x.Cos x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-\right.$
$\left.-\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}\right\}+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 412).

6) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-\right.$
$\left.-(1-p^2)\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}\right\}-\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 411).

7) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Sin x.Cos^2 x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-\right.$
$\left.-\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}\right\}+\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 412).

8) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Tg x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2}\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}$
(VIII, 411).

9) $\int Arccot\left\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\right\}\frac{Sin^2 x.Tg x}{\sqrt{1-p^2 Cos^2 x}}\frac{dx}{x}=\frac{\pi}{2p^2}\left\{\mathrm{E}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}-\right.$
$\left.-(1-p^2)\mathrm{F}\left\{p, Arccot\left[Tg\lambda.\sqrt{1-p^2}\right]\right\}\right\}-\frac{\pi}{2p^2}Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}}-1\right\}$ (VIII, 411).

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10) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\right\} \frac{Sin^3 x . Cos x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{8p^2}\Big\{\mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2)\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} - \frac{\pi}{8p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}} - 1\right\}$$ (VIII, 411).

11) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\right\} \frac{Tg x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{2}\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}$$ (VIII, 411).

12) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 2x}\right\} \frac{Cos^2 2x . Tg x}{\sqrt{1-p^2 Cos^2 2x}} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} + \frac{\pi}{2p^2} Cot\lambda . \left\{\frac{1}{\sqrt{1-p^2 Sin^2\lambda}} - 1\right\}$$ (VIII, 412).

13) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\right\} \frac{Sin x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2}\mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

14) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\right\} \frac{Sin x . Cos x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)} \Big\{\mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2)\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} - \frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 413).

15) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\right\} \frac{Sin^3 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2}\Big\{\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} + \frac{\pi\sqrt{1-p^2}}{2p^2} Tg\lambda . \left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

16) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\right\} \frac{Sin x . Cos^2 x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{\pi}{2p^2(1-p^2)} \Big\{\mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - (1-p^2)\mathrm{F}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\}\Big\} - \frac{\pi\, Tg\lambda}{2p^2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 413).

17) $$\int Arccot\left\{Tg\lambda . \sqrt{1-p^2 Cos^2 x}\right\} \frac{Tg x}{\sqrt{1-p^2 Cos^2 x}^3} \frac{dx}{x} = \frac{1}{2}\frac{\pi}{1-p^2}\mathrm{E}\{p, Arccot[Tg\lambda . \sqrt{1-p^2}]\} - \frac{\pi\, Tg\lambda}{2\sqrt{1-p^2}}\left\{1-\sqrt{\frac{1-p^2}{1-p^2 Sin^2\lambda}}\right\}$$ (VIII, 412).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $\sqrt{1-p^2 Cos^2 x}$; TABLE 450, suite. Lim. 0 et ∞.
Circ. Inv. $Arccot\,\{Tg\lambda.\sqrt{1-p^2 Cos^2 x}\}$; $[p^2<1]$.

18) $$\int Arccot\,\{Tg\lambda.\sqrt{1-p^2\,Cos^2 x}\}\,\frac{Sin^2 x.\,Tg x}{\sqrt{1-p^2\,Cos^2 x}^3}\,\frac{dx}{x}=\frac{\pi}{2p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{2p^2}\,Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}\ \text{(VIII, 412).}$$

19) $$\int Arccot\,\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\,\frac{Sin^3 x.\,Cos x}{\sqrt{1-p^2\,Cos^2 2x}^3}\,\frac{dx}{x}=\frac{\pi}{8p^2}\Big\{F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}+\frac{\pi\sqrt{1-p^2}}{8p^2}\,Tg\lambda.\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}\ \text{(VIII, 412).}$$

20) $$\int Arccot\,\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\,\frac{Tg x}{\sqrt{1-p^2\,Cos^2 2x}^3}\,\frac{dx}{x}=\frac{1}{2}\,\frac{\pi}{1-p^2}\,E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-\frac{\pi\,Tg\lambda}{2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}\ \text{(VIII, 412).}$$

21) $$\int Arccot\{Tg\lambda.\sqrt{1-p^2\,Cos^2 2x}\}\,\frac{Cos^2 2x.\,Tg x}{\sqrt{1-p^2\,Cos^2 2x}^3}\,\frac{dx}{x}=\frac{\pi}{2p^2(1-p^2)}\Big\{E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$$
$$-(1-p^2)\,F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}\Big\}-\frac{\pi\,Tg\lambda}{2p^2\sqrt{1-p^2}}\Big\{1-\sqrt{\frac{1-p^2}{1-p^2\,Sin^2\lambda}}\Big\}$$
(VIII, 413).

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $(1+2p\,Cos x+p^2)^{\frac{1}{2}a}$; TABLE 451. Lim. 0 et ∞.
Circulaire Inverse.

1) $$\int(1+2p\,Cos x+p^2)^{\frac{1}{2}r}\,Sin\Big\{r\,Arccos\Big(\frac{1+p\,Cos x}{\sqrt{1+2p\,Cos x+p^2}}\Big)\Big\}\,\frac{dx}{x}=\frac{\pi}{2}\,\{(1+p)^r-1\}\ \text{(VIII, 640).}$$

2) $$\int(1+2p\,Cos x+p^2)^{\frac{1}{2}r}\,Sin\Big\{ax+r\,Arccos\Big(\frac{1+p\,Cos x}{\sqrt{1+2p\,Cos x+p^2}}\Big)\Big\}\,\frac{dx}{x}=\frac{\pi}{2}\,(1+p)^r\ \text{(VIII, 639).}$$

3) $$\int(1+2p\,Cos x+p^2)^{\frac{1}{2}r}\,Sin\Big\{r\,Arccos\Big(\frac{1+p\,Cos x}{\sqrt{1+2p\,Cos x+p^2}}\Big)\Big\}.Cos\,ax\,\frac{dx}{x}=\frac{\pi}{2}\,\sum_{a}^{\infty}\binom{r}{n}p^n\ \text{(VIII, 639).}$$

4) $$\int(1+2p\,Cos x+p^2)^{\frac{1}{2}r}\,Cos\Big\{r\,Arccos\Big(\frac{1+p\,Cos x}{\sqrt{1+2p\,Cos x+p^2}}\Big)\Big\}.Sin\,ax\,\frac{dx}{x}=\frac{\pi}{2}\,\sum_{0}^{a}\binom{r}{n}p^n\ \text{(VIII, 638).}$$

5) $$\int(1+2p\,Cos 2x+p^2)^{\frac{1}{2}a}\,(p^2+2pq\,Cos 2x+q^2)^{\frac{1}{2}c}\,Sin\Big\{a\,Arccos\Big(\frac{1+p\,Cos 2x}{\sqrt{1+2p\,Cos 2x+p^2}}\Big)\Big\}.$$
$$Sin\Big\{c\,Arccos\Big(\frac{p+q\,Cos 2x}{\sqrt{p^2+2pq\,Cos 2x+q^2}}\Big)\Big\}.Sin x\,\frac{dx}{x}=\frac{\pi}{2}\,p^c\sum_{1}^{\infty}\binom{a}{n}\binom{c}{n}q^n\ \text{(VIII, 415).}$$

6) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Sin\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Sin\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n \text{ (VIII, 415).}$$

7) $$\int (1+2p\,Cos\,4x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}\,Sin\left\{a\,Arccos\left(\frac{1+p\,Cos\,4x}{\sqrt{1+2p\,Cos\,4x+p^2}}\right)\right\}.$$
$$Sin\left\{c\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n \text{ (VIII, 415).}$$

8) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \text{ (VIII, 416).}$$

9) $$\int (1+2p\,Cos\,2x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,2x}{\sqrt{1+2p\,Cos\,2x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \text{ (VIII, 416).}$$

10) $$\int (1+2p\,Cos\,4x+p^2)^{\frac{1}{2}a}(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}\,Cos\left\{a\,Arccos\left(\frac{1+p\,Cos\,4x}{\sqrt{1+2p\,Cos\,4x+p^2}}\right)\right\}.$$
$$Cos\left\{c\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Tg\,x\frac{dx}{x}=\frac{\pi}{2}p^c\left\{2+\sum_1^\infty\binom{a}{n}\binom{c}{n}q^n\right\} \text{ (VIII, 416).}$$

11) $$\int \frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,2bx.Sin\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \text{ (VIII, 416).}$$

12) $$\int \frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Sin\,2bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \text{ (VIII, 416).}$$

13) $$\int \frac{(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,4x+p^{2c}}\,Sin\left\{a\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Sin\,4bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\sum_1^\infty\binom{a}{nc}q^{nc} \text{ (VIII, 416).}$$

F. Alg. rat. fract. à dén. monôme;
Circ. Dir. irrat. à fact. $(1+2p\,Cos\,x+p^2)^{\frac{1}{2}a}$; TABLE 451, suite. Lim. 0 et ∞.
Circulaire Inverse.

14) $$\int\frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Cos\,2bx.Sin\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\}\text{ (VIII, 416).}$$

15) $$\int\frac{(p^2+2pq\,Cos\,2x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,2x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,2x}{\sqrt{p^2+2pq\,Cos\,2x+q^2}}\right)\right\}.Cos\,2bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\}\text{ (VIII, 416).}$$

16) $$\int\frac{(p^2+2pq\,Cos\,4x+q^2)^{\frac{1}{2}c}}{1-2p^c\,Cos\,4x+p^{2c}}\,Cos\left\{a\,Arccos\left(\frac{p+q\,Cos\,4x}{\sqrt{p^2+2pq\,Cos\,4x+q^2}}\right)\right\}.Cos\,4bx.Tg\,x\frac{dx}{x}=$$
$$=\frac{\pi}{2}p^{a-c}\left\{2+\sum_1^\infty\binom{a}{nc}q^{nc}\right\}\text{ (VIII, 416).}$$

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. irrat. à fact. $(1+2r\,Cos\,x+r^2)^{\frac{1}{2}a}$; TABLE 452. Lim. 0 et ∞.
Circulaire Inverse.

1) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{(1+re^{-qs})^a-1\right\}$$
(VIII, 501).

2) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}(1+re^{-qs})^a\text{ (VIII, 501).}$$

3) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{px+a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}e^{-pq}(1+re^{-qs})^a$$
(VIII, 502).

4) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{px+a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2q}e^{-pq}(1+re^{-qs})^a$$
(VIII, 502).

5) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.Sin\,px\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}-e^{-pq})$$
$$(1+re^{-qs})^a-\frac{\pi}{4q}e^{pq}\sum_0^d\binom{a}{n}r^n e^{-nqs}+\frac{\pi}{4q}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}\text{ (VIII, 502).}$$

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6) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Cos\,px\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}(e^{pq}+e^{-pq})$
$(1+re^{-qs})^a-\frac{\pi}{4}e^{pq}\sum_0^d\binom{a}{n}r^n e^{-nqs}-\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$ [p fractionn.], $=$
$=\frac{\pi}{4}(e^{pq}+e^{-pq})(1+re^{-qs})^a-\frac{\pi}{4}e^{pq}\sum_0^{d-1}\binom{a}{n}r^n e^{-nqs}-\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$ [p entier]
(VIII, 502).

7) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Sin\,px\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}(e^{-pq}-e^{pq})$
$(1+re^{-qs})^a+\frac{\pi}{4}e^{pq}\sum_0^d\binom{a}{n}r^n e^{-nqs}+\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$ [p fractionn.], $=$
$=\frac{\pi}{4}(e^{-pq}-e^{pq})(1+re^{-qs})^a+\frac{\pi}{4}e^{pq}\sum_0^{d-1}\binom{a}{n}r^n e^{-nqs}+\frac{\pi}{4}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$ [p entier]
(VIII, 501).

8) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Cos\,px\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}(e^{pq}+e^{-pq})$
$(1+re^{-qs})^a-\frac{\pi}{4q}e^{pq}\sum_0^d\binom{a}{n}r^n e^{-nqs}+\frac{\pi}{4q}e^{-pq}\sum_0^d\binom{a}{n}r^n e^{nqs}$ (VIII, 501).

Dans 5) à 8) on a $d=\mathcal{E}\frac{p}{s}$.

9) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Sin^{2b}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1^b\pi}{2^{2b+1}}(e^q-e^{-q})^{2b}$
$\{(1+re^{-qs})^a-1\}$ [$s>2b$], $=\frac{(-1)^b\pi}{2^{2b+1}}[(e^q-e^{-q})^{2b}\{(1+re^{-qs})^a-1\}-ar]$ [$s=2b$]
(V, 104).

10) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Sin^{2b+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{b-1}\pi}{2^{2b+2}}\Big[e^{-(2b+1)q}$
$\{(1-e^{(2b+1)2q})(1-e^{-2q})^{2b+1}-2\sum_0^b(-1)^n\binom{2b+1}{n}e^{2nq}\}+(e^q-e^{-q})^{2b+1}$
$\{(1+re^{-qs})^a-1\}\Big]$ [$s>2b+1$], $=\frac{(-1)^{b-1}\pi}{2^{2b+2}}\Big[e^{-(2b+1)q}\{(1-e^{(2b+1)2q})$
$(1-e^{-2q})^{2b+1}-2\sum_0^b(-1)^n\binom{2b+1}{n}e^{2nq}\}-ar+(e^q-e^{-q})^{2b+1}$
$\{(1+re^{-qs})^a-1\}\Big]$ [$s=2b+1$] (V, 104).

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11) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Cos\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Cos^{2b} x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2b+1} q}\left[\binom{2b}{b} + \right.$$
$$\left. + 2\sum_1^b \binom{2b}{n+b} e^{-2nq} + (e^q+e^{-q})^{2b}\left\{(1+re^{-qs})^a - 1\right\}\right] [s \geqq 2b] \text{ (V, 104).}$$

12) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Cos\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Cos^{2b+1} x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2b+2} q}$$
$$\left[2\sum_0^b \binom{2b+1}{n+b+1} e^{-(2n+1)q} + (e^q+e^{-q})^{2b+1}\left\{(1+re^{-qs})^a - 1\right\}\right] [s \geqq 2b+1] \text{ (V, 104).}$$

13) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Sin\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Sin\, p\, x\, .\, Sin^{2b+1} x \frac{x\, dx}{q^2+x^2} =$$
$$= \frac{(-1)^{b-1}\pi}{2^{2b+3}} (e^q - e^{-q})^{2b+1} (e^{pq} - e^{-pq}) \left\{(1+re^{-qs})^a - 1\right\} [p < s-2b-1], =$$
$$= \frac{(-1)^{b-1}\pi}{2^{2b+3}} \left[(e^q - e^{-q})^{2b+1} (e^{pq} - e^{-pq}) \left\{(1+re^{-qs})^a - 1\right\} - ar\right] [p = s-2b-1]$$
(V, 107).

14) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Sin\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Sin\, p\, x\, .\, Cos^{b} x \frac{dx}{q^2+x^2} = \frac{\pi}{2^{b+1} q} (e^q+e^{-q})^b$$
$$(e^{pq} - e^{-pq}) \left\{(1+re^{-qs})^a - 1\right\} [p \leqq s-b] \text{ (V, 105).}$$

15) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Sin\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Cos\, p\, x\, .\, Sin^{2b} x \frac{x\, dx}{q^2+x^2} =$$
$$= \frac{(-1)^{b}\pi}{2^{2b+2}} (e^q - e^{-q})^{2b} (e^{pq} + e^{-pq}) \left\{(1+re^{-qs})^a - 1\right\} [p < s-2b], =$$
$$= \frac{(-1)^{b}\pi}{2^{2b+2}} \left[(e^q - e^{-q})^{2b} (e^{pq} + e^{-pq}) \left\{(1+re^{-qs})^a - 1\right\} - ar\right] [p = s-2b] \text{ (V, 106).}$$

16) $$\int (1+2r\, Cos\, s\, x+r^2)^{\frac{1}{2}a}\, Cos\left\{a\, Arctg\left(\frac{r\, Sin\, s\, x}{1+r\, Cos\, s\, x}\right)\right\} . Sin\, p\, x\, .\, Sin^{2b} x \frac{x\, dx}{q^2+x^2} = \frac{(-1)^b\pi}{2^{2b+2}}$$
$$(e^q - e^{-q})^{2b} \left\{(e^{pq} + e^{-pq}) - (e^{pq} - e^{-pq})(1+re^{-qs})^a\right\} [2p > 4b < s], = \frac{(-1)^b\pi}{2^{2b+2}}$$
$$\left[(e^q - e^{-q})^{2b} \left\{(e^{pq} + e^{-pq}) - (e^{pq} - e^{-pq})(1+re^{-qs})^a\right\} - 2e^{(2b-p)q}\sum_0^{d-1}(-1)^n\binom{2b}{n}\right.$$
$$\left. e^{-2nq} - 2e^{(p-2b)q}\sum_0^d (-1)^n \binom{2b}{n} e^{2nq}\right] [4b > 2p < s, p \text{ entier}], = \frac{(-1)^b\pi}{2^{2b+2}}\left[(e^q - e^{-q})^{2b}\right.$$
$$\left\{(e^{pq} + e^{-pq}) - (e^{pq} - e^{-pq})(1+re^{-qs})^a\right\} - 2e^{(2b-p)q}\sum_0^d (-1)^n\binom{2b}{n} e^{-2nq} - 2e^{(p-2b)q}$$
$$\left.\sum_0^d (-1)^n \binom{2b}{n} e^{2nq}\right] [4b > 2p < s, p \text{ fractionn.}], = \frac{(-1)^b\pi}{2^{2b+2}} \left[(e^q - e^{-q})^{2b}\left\{(e^{pq} + e^{-pq}) - \right.\right.$$

$$-(e^{pq}-e^{-pq})(1+re^{-qs})^a\Big\}+ar\Big]\;[2s-4b=2p>s>4b],=\frac{(-1)^b\pi}{2^{2b+2}}\Big[(e^q-e^{-q})^{2b}\Big\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\Big\}+ar-2e^{(2b-p)q}\sum_0^{d-1}(-1)^n\binom{2b}{n}e^{-2nq}-2e^{(p-2b)q}\sum_0^{d}(-1)^n\binom{2b}{n}e^{2nq}\Big]\;[2s-4b=2p<s<4b,\,p\text{ entier}],=\frac{(-1)^b\pi}{2^{2b+2}}\Big[(e^q-e^{-q})^{2b}\Big\{(e^{pq}+e^{-pq})-(e^{pq}-e^{-pq})(1+re^{-qs})^a\Big\}+ar-2e^{(2b-p)q}\sum_0^{d}(-1)^n\binom{2b}{n}e^{-2nq}-2e^{(p-2b)q}\sum_0^{d}(-1)^n\binom{2b}{n}e^{2nq}\Big]\;[2s-4b=2p<s<4b,\,p\text{ fractionn.}]\;\Big[d=\mathcal{E}\Big(b-\frac{1}{2}p\Big)\Big]$$ (V, 105, 106).

17) $$\int(1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\Big\{a\,Arctg\Big(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\Big)\Big\}\,.\,Cos\,px\,.\,Sin^{2b+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^b\pi}{2^{2b+3}}(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}\;[2p<4b+2<s],=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}+2e^{(2b+1-p)q}\sum_0^{d-1}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]\;[4b+2>p<s,\,p\text{ entier}],=$$

$$=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}+2e^{(2b+1-p)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]\;[4b+2>p<s,p\text{ fract.}],=$$

$$=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}+ar\Big]\;[2s-4b-2=2p>s>4b+2],=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}+ar+2e^{(2b+1-p)q}\sum_0^{d-1}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]$$

$$[2s-4b-2=2p<s<4b+2,\,p\text{ entier}],=\frac{(-1)^b\pi}{2^{2b+3}}\Big[(e^q-e^{-q})^{2b+1}\Big\{(e^{pq}-e^{-pq})-(e^{pq}+e^{-pq})(1+re^{-qs})^a\Big\}+ar+2e^{(2b+1-p)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{-2nq}+2e^{(p-2b-1)q}\sum_0^{d}(-1)^n\binom{2b+1}{n}e^{2nq}\Big]\;[2s-4b-2=2p<s<4b+2,p\text{ fract.}]\;\Big[d=\mathcal{E}\,\frac{1}{2}(2b+1-p)\Big]$$

(V, 106, 107).

18) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,x}\right)\right\}.Cos\,p\,x\,.\,Cos^b x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{b+2}q}(e^q+e^{-q})^b$$
$$\left\{(e^{-pq}-e^{pq})+(e^{pq}+e^{-pq})(1+re^{-qs})^a\right\}[2p\geqq 2b\leqq s], =\frac{\pi}{2^{b+2}q}\Big[(e^q+e^{-q})^b$$
$$\left\{(e^{-pq}-e^{pq})+(e^{pq}+e^{-pq})(1+re^{-qs})^a\right\}-2e^{(b-p)q}\sum_0^d\binom{b}{n}e^{-2nq}+2e^{(p-b)q}$$
$$\sum_0^d\binom{b}{n}e^{2nq}\Big]\,[2b>2p\leqq s]\left[d=\mathcal{E}\,\frac{1}{2}(b-p)\right] \text{ (V, 105).}$$

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. irrat. à fact. $(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}$; TABLE 453. Lim. 0 et ∞.
Circulaire Inverse.

1) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\Big[1-(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}\Big] \text{ (VIII, 512).}$$

2) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\} \text{ (VIII, 511).}$$

3) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{p\,x+a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}\left[\frac{p}{s}\text{ fractionn.}\right], =-\frac{\pi}{2}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}+\frac{\pi}{2}\binom{a}{d}r^d\left[\frac{p}{s}\text{ entier }=d\right] \text{ (VIII, 513).}$$

4) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Cos\left\{p\,x+a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Sin\left\{p\,q+a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\} \text{ (VIII, 512).}$$

5) $$\int(1+2r\,Cos\,s\,x+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,s\,x}{1+r\,Cos\,s\,x}\right)\right\}.Sin\,p\,x\,\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}(1+2r\,Cos\,q\,s+r^2)^{\frac{1}{2}a}$$
$$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,q\,s}{1+r\,Cos\,q\,s}\right)\right\}.Sin\,p\,q+\frac{\pi}{2q}\sum_0^d\binom{a}{n}r^n\,Sin\{(p-ns)q\}$$
(VIII, 512).

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6) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Cos\,px\,\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Cos\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.\,Cos\,pq+\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n\,Cos\{(p-ns)q\}$ [p fractionn.], $=$
$= -\frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.\,Cos\,pq+\frac{\pi}{4}\binom{a}{d}r^d+\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n$
$Cos\{(p-ns)q\}$ [p entier] (VIII, 512).

7) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Sin\,px\,\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.\,Sin\,pq-\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n\,Cos\{(p-ns)q\}$ [p fractionn.] $=$
$= \frac{\pi}{2}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}\,Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.\,Sin\,pq+\frac{\pi}{4}\binom{a}{d}r^d-\frac{\pi}{2}\sum_0^d\binom{a}{n}r^n$
$Cos\{(p-ns)q\}$ [p entier] (VIII, 512).

8) $\int (1+2r\,Cos\,sx+r^2)^{\frac{1}{2}a}\,Cos\left\{a\,Arctg\left(\frac{r\,Sin\,sx}{1+r\,Cos\,sx}\right)\right\}.\,Cos\,px\,\frac{dx}{q^2-x^2} = \frac{\pi}{2q}(1+2r\,Cos\,qs+r^2)^{\frac{1}{2}a}$
$Sin\left\{a\,Arctg\left(\frac{r\,Sin\,qs}{1+r\,Cos\,qs}\right)\right\}.\,Cos\,pq+\frac{\pi}{2q}\sum_0^d\binom{a}{n}r^n\,Sin\{(p-ns)q\}$ (VIII, 511).

Dans 5) à 8) on a $d = \mathcal{E}\frac{p}{s}$.

1) $\int Sin\left(r\,Arctg\frac{x}{q}\right).\,Sin\,px\,\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{\frac{1}{2}r}}{2\,\Gamma(r)}$ (VIII, 277).

2) $\int Cos\left(a\,Arctg\frac{x}{q}\right).\,Sin\,px\,\frac{x\,dx}{(p^2+x^2)^{\frac{1}{2}a}} = \frac{(-1)^{a-1}}{1^{a-1/1}}\,\frac{\pi}{2}\,\frac{d^{a-1}}{dq^{a-1}}.\,q\,e^{-pq}$ (VIII, 278).

3) $\int Cos\left(r\,Arctg\frac{x}{q}\right).\,Cos\,px\,\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{\frac{1}{2}r}}{2\,\Gamma(r)}$ (VIII, 277).

4) $\int Cos\left(px+r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = 0$ V. T. 44, N. 3.

5) $\int Cos\left(px-r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}} = \frac{\pi e^{-pq}p^{\frac{1}{2}(r-1)}}{\Gamma(r)}$ V. T. 44, N. 2.

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6) $\int Cos\left(px+r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r-1}}=\frac{\pi e^{-pq}}{2^{r+1}}$ V. T. 44, N. 4.

7) $\int Cos\left(r\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}r}}=0$ (VIII, 573).

8) $\int Cos\left\{(r-a-1)\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}(r+a+1)}}=\frac{\pi}{2^{r+a}}\frac{r^{a/1}}{1^{a/1}}\frac{1}{q^{r+a}}$ (VIII, 573).

9) $\int Sin\left(r\,Arctg\frac{x}{q}\right).Sin\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}}=\frac{\pi}{2^{r+a}}\frac{r^{a-1/1}}{1^{a-1/1}}\frac{1}{q^{r+a-1}}$ (VIII, 572).

10) $\int Sin\left(r\,Arctg\frac{x}{q}\right).Cos\left(a\,Arctg\frac{x}{q}\right)\frac{x\,dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}}=\frac{\pi}{2^{r+a}}\frac{r^{a-1/1}}{1^{a-1/1}}\frac{1}{q^{r+a-2}}$ (VIII, 574).

11) $\int Cos\left(r\,Arctg\frac{x}{q}\right).Cos\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}(a+r)}}=\frac{\pi}{2^{r+a}}\frac{r^{a-1/1}}{1^{a-1/1}}\frac{1}{q^{r+a-1}}$ (VIII, 572).

12) $\int Sin\,s\,r\,x\,.\,Tg\,r\,x\,.\,Cos\left\{s\,r\,x+c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$ (H, 87).

13) $\int Sin\,s\,r\,x\,.\,Cot\,r\,x\,.\,Cos\left\{s\,r\,x+c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$ (H, 84).

14) $\int Sin\,s\,r\,x\,.\,Cosec\,r\,x\,.\,Cos\left\{s\,r\,x+c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$ (H, 89).

15) $\int Cos^s\,r\,x\,.\,Cos^{s_1}\,r_1\,x\ldots Cos\left\{(sr+s_1r_1+\ldots)x+c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$ (H, 45).

16) $\int Sin^s\,r\,x\,.\,Sin^{s_1}\,r_1\,x\ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x-c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$
(H, 50).

17) $\int Cos^t\,p\,x\ldots Sin^s\,r\,x\ldots Cos\left\{(s+\ldots)\frac{1}{2}\pi-(tp+\ldots+sr+\ldots)x-c\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}c}}=0$
(H, 55).

18) $\int(1-2e^r\,Cos\,x+e^{2r})^{\frac{1}{2}c}\,Cos\left\{p\,x+c\,Arctg\left(\frac{Sin\,x}{Cos\,x-e^{-r}}\right)+a\,Arctg\frac{x}{q}\right\}\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}}=0$
(IV, 556).

F. Alg. irrat. fract. à dén. $x^r (q^2+x^2)^{\frac{1}{2}a}$;
Circulaire Directe; TABLE 455. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}q^{-p}$ (VIII, 449).

2) $\int Sin\left\{(p-a)\, Arctg\frac{x}{q}\right\}\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(p+a)}} = \frac{\pi}{2\,.\,1^{a-1/1}q^{p+a}}\left\{p^{a-1/1} - \frac{1}{2^{p+a-2}}\sum_0^{a-1}\binom{a-1}{n}2^{n/2}p^{a-n-1/1}\right\}$ (VIII, 574).

3) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x^r(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2q^{p+r-1}}\, Cosec\,\frac{1}{2}r\pi\,\frac{\Gamma(p+r-1)}{\Gamma(p)\Gamma(r)}\,[2>r>0]$ (VIII, 449).

4) $\int Cos\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{x^r(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2q^{p+r-1}}\, Sec\,\frac{1}{2}r\pi\,\frac{\Gamma(p+r-1)}{\Gamma(p)\Gamma(r)}\,[1>r>-1]$ (VIII, 448).

5) $\int Sin(cx+p\, Arctg\, x)\frac{dx}{x(1+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}$ V. T. 51, N. 15.

6) $\int\{Sin(p\, Arctg\, x)+Sin(ax-p\, Arctg\, x)\}\frac{dx}{x(1+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}$ (IV, 557).

7) $\int Cos\left\{c-\frac{Cos(p\, Arctg\, x)}{(1+x^2)^{\frac{1}{2}p}}\right\}\frac{dx}{x} = Z'(p)$ (VIII, 682).

8) $\int Sin\left(a\, Arctg\frac{x}{q}\right).Cos\,px\frac{dx}{x(q^2+x^2)^{\frac{1}{2}a}} = \frac{(-1)^{a-1}}{1^{a-1/1}}\frac{\pi}{2}\frac{d^{a-1}}{dq^{a-1}}.\frac{e^{-pq}}{q}$ (VIII, 277).

9) $\int Sin\left(p\, Arctg\frac{x}{q}\right).Cos\left(a\, Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(a+p)}} = \frac{\pi}{1^{a-1/1}}\,\frac{1}{2q^{p+a}}\left\{p^{a-1/1} - \frac{1}{2^{p+a-1}}\sum_0^{a-1}\binom{a-1}{n}2^{n/2}p^{a-n-1/1}\right\}$ (VIII, 574).

10) $\int Cos\left(p\, Arctg\frac{x}{q}\right).Sin\left(a\, Arctg\frac{x}{q}\right)\frac{dx}{x(q^2+x^2)^{\frac{1}{2}(a+p)}} = \frac{\pi}{2^{p+a}1^{a-1/1}}\,\frac{1}{q^{p+a}}\sum_0^{a-1}\binom{a-1}{n}2^{n/2}p^{a-n-1/1}$ (VIII, 574).

F. Alg. irrat. fract. à dén. prod. de bin.;
Circulaire Directe; TABLE 456. Lim. 0 et ∞.
Circulaire Inverse.

1) $\int Sin\left(p\, Arctg\frac{x}{q}\right)\frac{x\,dx}{(s^2+x^2)(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}\,\frac{1}{(q+s)^p}$ (VIII, 449).

2) $\int Cos\left(p\, Arctg\frac{x}{q}\right)\frac{dx}{(s^2+x^2)(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2s}\,\frac{1}{(q+s)^p}$ (VIII, 449).

3) $\int Sin\left(p\,Arctg\frac{x}{q}\right)\frac{x\,dx}{(r^2+x^2)^{a+1}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2\,(2\,r)^a\,(q+r)^{p+a}}\frac{p^{a/1}}{1^{a/1}}\sum_0^\infty \frac{(a+n-1)^{2n/-1}}{2^{n/2}(p+a-1)^{n/-1}}\left(\frac{q+r}{r}\right)^n$ (VIII, 450).

4) $\int Cos\left(p\,Arctg\frac{x}{q}\right)\frac{dx}{(r^2+x^2)^{a+1}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{(2\,r)^{a+1}(q+r)^{p+a}}\frac{p^{a/1}}{1^{a/1}}\sum_0^\infty \frac{(a+n)^{2n/-1}}{2^{n/2}(p+a-1)^{n/-1}}\left(\frac{q+r}{r}\right)^n$ (VIII, 450).

5) $\int Sin\left(p\,Arctg\frac{x}{q}\right)\frac{dx}{x(r^2+x^2)(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2r^2}\left\{\frac{1}{q^p}-\frac{1}{(1+q)^p}\right\}$ (VIII, 450).

6) $\int Sin\left(p\,Arctg\frac{x}{q}+a\,Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2\,q^p\,s^a}\frac{p^{a-1/1}}{1^{a-1/1}}$ (VIII, 574).

7) $\int Sin\left(p\,Arctg\frac{x}{q}-a\,Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{s\,.\,1^{a-1/1}}\left\{\frac{p^{a-1/1}}{2\,s^{a-1}\,q^p}-\right.$

$\left.-\frac{1}{(q+s)^{a+p-1}}\sum_0^{a-1}\binom{a-1}{n}1^{n/1}\,p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n\right\}$ (VIII, 574).

8) $\int Cos\left(p\,Arctg\frac{x}{q}+a\,Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=0$ (VIII, 573).

9) $\int Cos\left(p\,Arctg\frac{x}{q}-a\,Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{p^{a-1/1}}{1^{a-1/1}}\frac{\pi}{(q+s)^{p+a-1}}$ (VIII, 573).

10) $\int Sin\left(p\,Arctg\frac{x}{q}\right).Sin\left(a\,Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}\frac{p^{a-1/1}}{1^{a-1/1}}\frac{1}{(q+s)^{p+a-1}}$ (VIII, 572).

11) $\int Sin\left(p\,Arctg\frac{x}{q}\right).Cos\left(a\,Arctg\frac{x}{s}\right)\frac{x\,dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2}\frac{p^{a-1/1}}{1^{a-1/1}}\frac{(a-1)q+(p-1)s}{p+a-2}\frac{1}{(q+s)^{p+a-1}}$ (VIII, 574).

12) $\int Sin\left(p\,Arctg\frac{x}{q}\right).Cos\left(a\,Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}}=\frac{\pi}{2s\,.\,1^{a-1/1}}\left\{\frac{p^{a-1/1}}{s^{a-1}q^p}-\right.$

$\left.-\frac{1}{(q+s)^{p+a-1}}\sum_0^{a-1}\binom{a-1}{n}1^{n/1}\,p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n\right\}$ (VIII, 574).

13) $\int Cos\left(p\, Arctg\frac{x}{q}\right).Sin\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{x(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{1^{a-1/1}\,2s(q+s)^{p+a-1}}\sum_0^{a-1}$
$\binom{a-1}{n}1^{n/1}p^{a-n-1/1}\left(\frac{q+s}{s}\right)^n$ (VIII, 573).

14) $\int Cos\left(p\, Arctg\frac{x}{q}\right):Cos\left(a\, Arctg\frac{x}{s}\right)\frac{dx}{(s^2+x^2)^{\frac{1}{2}a}(q^2+x^2)^{\frac{1}{2}p}} = \frac{\pi}{2}\frac{p^{a-1/1}}{1^{a-1/1}}\frac{1}{(q+s)^{p+a-1}}$
(VIII, 572).

F. Algébrique;
Circulaire Directe; TABLE 457. Lim. 0 et $\frac{\pi}{2}$.
Circulaire Inverse.

1) $\int Arctg(p\,Sin\,x)\frac{x\,dx}{Sin\,x.Tang\,x} = \frac{\pi}{2}\left\{l\frac{1+p}{p}+l\{p+\sqrt{1+p^2}\}-Arctg\,p\right\}$
V. T. 207, N. 11 et T. 342, N. 1.

2) $\int Arctg(p\,Cos\,x).Tg\,x\frac{x\,dx}{Cos\,x} = \frac{\pi}{2}\left\{p+l\frac{1+p}{p}-l\{p+\sqrt{1+p^2}\}\right\}$
V. T. 208, N. 20 et T. 342, N. 2.

3) $\int Arctg\left\{\frac{Cot\lambda}{\sqrt{1-p^2\,Sin^2 x}}\right\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2 x}}dx = \frac{\pi}{p^2}\Big[E\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}-$
$-Cot\lambda.\left\{\frac{1}{\sqrt{1-p^2\,Sin^2\lambda}}-1\right\}-\sqrt{1-p^2}.Arccot[Tg\lambda.\sqrt{1-p^2}]-$
$-Cot\lambda.l\frac{2\sqrt{1-p^2\,Sin^2\lambda}}{1+\sqrt{1-p^2\,Sin^2\lambda}}\Big]$ V. T. 207, N. 2 et T. 341, N. 13.

4) $\int Arctg\left\{\frac{Cot\lambda}{\sqrt{1-p^2\,Sin^2 x}}\right\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2 x}^3}dx = \frac{\pi}{p^2}\Big[\frac{1}{\sqrt{1-p^2}}Arccot[Tg\lambda.\sqrt{1-p^2}]-$
$-F\{p, Arccot[Tg\lambda.\sqrt{1-p^2}]\}+Tg\lambda.l\frac{\{1+\sqrt{1-p^2\,Sin^2\lambda}\}\sqrt{1-p^2}}{\{1+\sqrt{1-p^2}\}\sqrt{1-p^2\,Sin^2\lambda}}\Big]$
V. T. 208, N. 10 et T. 344, N. 14.

5) $\int Arctg\{Tg\lambda.\sqrt{1-p^2\,Sin^2 x}\}.\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2 x}}dx = \frac{\pi}{p^2}\Big[E(p,\lambda)-Cot\lambda.\{1-\sqrt{1-p^2\,Sin^2\lambda}\}-$
$-\sqrt{1-p^2}.Arctg[Tg\lambda.\sqrt{1-p^2}]+Cot\lambda.l\frac{2\sqrt{1-p^2\,Sin^2\lambda}}{1+\sqrt{1-p^2\,Sin^2\lambda}}\Big]$
V. T. 207, N. 2 et T. 341, N. 12.

6) $\int Arctg\left\{Tg\lambda.\sqrt{1-p^2\,Sin^2 x}\right\}\frac{x\,Sin\,2x}{\sqrt{1-p^2\,Sin^2 x}^3}dx=\frac{\pi}{p^2}\left[\frac{1}{\sqrt{1-p^2}}Arctg[Tg\lambda.\sqrt{1-p^2}]-\right.$

$\left.-F(p,\lambda)+Tg\lambda.l\frac{\{1+\sqrt{1-p^2}\}\sqrt{1-p^2\,Sin^2\lambda}}{\{1+\sqrt{1-p^2\,Sin^2\lambda}\}\sqrt{1-p^2}}\right]$ V. T. 208, N. 10 et T. 344, N. 3.

7) $\int Arctg\left(q\,Tg\,x\right)\frac{x\,dx}{Sin^2 x}=\frac{\pi}{2q}\left\{l(1+q)+q\,l\frac{1+q}{q}\right\}$ V. T. 247, N. 8.

1) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right).Sin\,a\,x.x^{2b}\,dx=\frac{(-1)^b\pi p^a}{2a^{2b+1}}1^{2b/1}\sum_0^{2b}\frac{(-a\,l p)^n}{1^{n/1}}$ (IV, 553).

2) $\int Arctg\left(\frac{p\,Sin\,x}{1-p\,Cos\,x}\right).Cos\,a\,x.x^{2b-1}\,dx=\frac{(-1)^b\pi p^a}{2a^{2b}}1^{2b-1/1}\sum_0^{2b-1}\frac{(-a\,l p)^n}{1^{n/1}}$ (IV, 553).

3) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\,2\,a\,x.x^{2b}\,dx=0$ V. T. 458, N. 1.

4) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\{(2a-1)x\}.x^{2b}\,dx=\frac{(-1)^b\pi p^{2a-1}}{2^{2b}(2a-1)^{2b+1}}1^{2b/1}\sum_0^{2b}\frac{\{-(2a-1)\,l p\}^n}{1^{n/1}}$

V. T. 458, N. 1.

5) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\,2\,a\,x.x^{2b-1}\,dx=0$ V. T. 458, N. 2.

6) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\{(2a-1)x\}.x^{2b-1}\,dx=\frac{(-1)^{b-1}\pi p^{2a-1}}{2^{2b-1}(2a-1)^{2b}}1^{2b-1/1}\sum_0^{2b-1}\frac{\{-(2a-1)l p\}^n}{1^{n/1}}$

V. T. 458, N. 2.

7) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\{(2a-1)x\}.Sin\,x.x^{2b-1}\,dx=0$ V. T. 458, N. 5.

8) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Sin\{(2a-1)x\}.Cos\,x.x^{2b}\,dx=0$ V. T. 458, N. 3.

9) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\{(2a-1)x\}.Sin\,x.x^{2b}\,dx=0$ V. T. 458, N. 3.

10) $\int Arctg\left(\frac{2p\,Sin\,x}{1-p^2}\right).Cos\{(2a-1)x\}.Cos\,x.x^{2b-1}\,dx=0$ V. T. 458, N. 5.

F. Algébrique;
Circulaire Directe; TABLE 458, suite. Lim. 0 et π.
Circulaire Inverse; $[p^2 < 1, 0 < q < 1]$.

11) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.x^{2b}\,dx = \frac{(-1)^b \pi q^a}{2^{2b}a^{2b+1}} 1^{2b/1} \sum_0^{2b} \frac{(-alq)^n}{1^{n/1}}$ V. T. 458, N. 1.

12) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,\{(2a-1)x\}.x^{2b}\,dx = 0$ V. T. 458, N. 1.

13) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.x^{2b-1}\,dx = \frac{(-1)^b \pi q^a}{2^{2b-1}a^{2b}} 1^{2b-1/1} \sum_0^{2b-1} \frac{(-alq)^n}{1^{n/1}}$ V. T. 458, N. 2.

14) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,\{(2a-1)x\}.x^{2b-1}\,dx = 0$ V. T. 458, N. 2.

15) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.Sin\,x.x^{2b-1}\,dx = 0$ V. T. 458, N. 14.

16) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Sin\,2ax.Cos\,x.x^{2b}\,dx = 0$ V. T. 458, N. 12.

17) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.Sin\,x.x^{2b}\,dx = 0$ V. T. 458, N. 12.

18) $\int Arctg\left(\frac{q\,Sin\,2x}{1-q\,Cos\,2x}\right).Cos\,2ax.Cos\,x.x^{2b-1}\,dx = 0$ V. T. 458, N. 14.

F. Algébrique;
Circulaire Directe; TABLE 459. Lim. diverses.
Circulaire Inverse.

1) $\int_0^1 Sin\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = \frac{1}{(a-1)q^{a-1}} - \frac{Cos\{(a-1)\,Arccot\,q\}}{(a-1)(1+q)^{\frac{1}{2}(a-1)}}$,

2) $\int_0^1 Cos\left(a\,Arctg\frac{x}{q}\right)\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = \frac{1}{(a-1)(1+q^2)^{\frac{1}{2}(a-1)}} Sin\{(a-1)\,Arccot\,q\}$

Sur 1) et 2) v. Lindmann, Gr. Arch. 38, 246.

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à un ou trois facteurs; TABLE 460. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(rx).Sin\,px\frac{dx}{q^2+x^2} = \frac{\pi}{4q}e^{-pq}\{Ei(qr)-Ei(-qr)\}\,[p \geqq r], = \frac{\pi}{4q}[e^{-pq}\{Ei(pq) - Ei(-qr)\} - e^{pq}\{Ei(-pq)-Ei(qr)\}]\,[p \leqq r]$ (VIII, 467).

Page 664.

2) $\int Si(rx)\,.\,Cos\,px \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{4} e^{-pq}\{Ei(qr)-Ei(-qr)\}\,[p>r], = -\frac{\pi}{4}[e^{-pq}\{Ei(pq)-$
$-Ei(-qr)\}+e^{pq}\{Ei(-pq)-Ei(-qr)\}]\,[p<r]$ (VIII, 467).

3) $\int Ci(rx)\,.\,Sin\,px \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{4}(e^{pq}-e^{-pq})\,Ei(-qr)\,[p<r], = \frac{\pi}{4}[e^{-pq}\{Ei(qr)+$
$+Ei(-qr)-Ei(pq)\}-e^{pq}\,Ei(-pq)]\,[p>r]$ (VIII, 468).

4) $\int Ci(rx)\,.\,Cos\,px \frac{dx}{q^2+x^2} = \frac{\pi}{4q}(e^{pq}+e^{-pq})\,Ei(-qr)\,[p\leqq r], = \frac{\pi}{4q}[e^{-pq}\{Ei(qr)+$
$+Ei(-qr)-Ei(pq)\}+e^{pq}\,Ei(-pq)]\,[p\geqq r]$ (VIII, 468).

5) $\int Si(rx)\,.\,Cos\,rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} e^{-qr}\{Ei(-qr)-Ei(qr)\}$ (VIII, 467).

6) $\int Ci(rx)\,.\,Sin\,rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}(e^{-qr}-e^{qr})\,Ei(-qr)$ (VIII, 468).

7) $\int Si(x)\,.\,Sin\,srx\,.\,Sin\{(s-1)rx\}\,.\,Cosec\,rx \frac{dx}{q^2+x^2} = \frac{\pi}{4q}\{Ei(q)-Ei(-q)\}\frac{e^{-2qr}-e^{-2sqr}}{1-e^{-2qr}}$
(VIII, 660).

8) $\int Si(x)\,.\,Sin\,srx\,.\,Cos\{(s-1)rx\}\,.\,Cosec\,rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\{Ei(-q)-Ei(q)\}\frac{1-e^{-2sqr}}{1-e^{-2qr}}$
(VIII, 660).

9) $\int Ci(x)\,.\,Sin\,srx\,.\,Sin\{(s-1)rx\}\,.\,Cosec\,rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4} Ei(-q)\frac{1+e^{-2qr}-e^{(s-1)2qr}-e^{-2sqr}}{1-e^{-2qr}}$
(VIII, 660).

10) $\int Ci(x)\,.\,Sin\,srx\,.\,Cos\{(s-1)rx\}\,.\,Cosec\,rx \frac{dx}{q^2+x^2} = \frac{\pi}{4q} Ei(-q)\frac{1-e^{-2qr}+e^{(s-1)2qr}-e^{-2sqr}}{1-e^{-2qr}}$
(VIII, 660).

11) $\int Si(x)\,.\,Sin\,2srx\,.\,Cos\{(2s+1)rx\}\,.\,Sec\,rx \frac{dx}{q^2+x^2} = \frac{\pi}{4q}\{Ei(q)-Ei(-q)\}\frac{e^{-(2s+1)2qr}-e^{-2qr}}{1+e^{-2qr}}$
(VIII, 661).

12) $\int Si(x)\,.\,Cos\,2srx\,.\,Cos\{(2s+1)rx\}\,.\,Sec\,rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\{Ei(-q)-Ei(q)\}\frac{1+e^{-(2s+1)2qr}}{1+e^{-2qr}}$
(VIII, 661).

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à un ou trois facteurs; TABLE 460, suite. Lim. 0 et ∞.
Autre Fonction.

13) $\int Ci(x).Sin\,2\,s\,r\,x.Cos\{(2s+1)r\,x\}.Sec\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}Ei(-q)\frac{1-e^{-2qr}-e^{4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 661).

14) $\int Ci(x).Cos\,2\,s\,r\,x.Cos\{(2s+1)r\,x\}.Sec\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q)\frac{1+e^{-2qr}+e^{4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 661).

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à deux facteurs; TABLE 461. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x).Sin\,4\,s\,r\,x.Tg\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\left[2\,Ei(-q)-\{Ei(q)-Ei(-q)\}\frac{2-e^{-4sqr}+e^{-(2s+1)2qr}}{1+e^{-2qr}}\right]$ (VIII, 663).

2) $\int Si(x).Sin^2\,2\,s\,r\,x.Tg\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{8q}\{Ei(-q)-Ei(q)\}\frac{2\,e^{-2qr}+e^{-4sqr}-e^{-(2s+1)2qr}}{1+e^{-2qr}}$ (VIII, 663).

3) $\int Ci(x).Sin\,4\,s\,r\,x.Tg\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q).(e^{-4sqr}-e^{4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (VIII, 663).

4) $\int Ci(x).Sin^2\,2\,s\,r\,x.Tg\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8}Ei(-q).\{-2+e^{4sqr}+e^{-4sqr})\frac{1-e^{-2qr}}{1+e^{-2qr}}$ (VIII, 663).

5) $\int Si(x).Sin\,2\,s\,r\,x.Cot\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\left[\{Ei(-q)-Ei(q)\}\frac{2-e^{-2sqr}+e^{-(s+1)2qr}}{1-e^{-2qr}}-2\,Ei(-q)\right]$ (VIII, 662).

6) $\int Si(x).Sin^2\,s\,r\,x.Cot\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{8q}\{Ei(q)-Ei(-q)\}\frac{2\,e^{-2qr}-e^{-2sqr}-e^{-(s+1)2qr}}{1-e^{-2qr}}$ (VIII, 662).

7) $\int Ci(x).Sin\,2\,s\,r\,x.Cot\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{4q}Ei(-q).(e^{2sqr}-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (VIII, 662).

8) $\int Ci(x).Sin^2\,s\,r\,x.Cot\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{8}Ei(-q).(2-e^{2sqr}-e^{-2sqr})\frac{1+e^{-2qr}}{1-e^{-2qr}}$ (VIII, 662).

9) $\int Si(x).Sin\,2\,s\,r\,x.Cosec\,r\,x\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\{Ei(-q)-Ei(q)\}\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

10) $\int Si(x).Sin^2\,s\,r\,x.Cosec\,r\,x\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\{Ei(q)-Ei(-q)\}\frac{1-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

11) $\int Ci(x)\,.\,Sin\,2\,s\,r\,x\,.\,Cosec\,r\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2q}\,Ei(-q)\,\frac{e^{2sqr}-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

12) $\int Ci(x)\,.\,Sin^2\,s\,r\,x\,.\,Cosec\,r\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\,Ei(-q)\,\frac{2-e^{2sqr}-e^{-2sqr}}{e^{qr}-e^{-qr}}$ (VIII, 663).

13) $\int Si(x)\,.\,Cos^s\,r\,x\,.\,Sin\,s\,r\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}\,\{(1+e^{-2qr})^s-1\}$ (VIII, 645).

14) $\int Si(x)\,.\,Cos^s\,r\,x\,.\,Cos\,s\,r\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(1+e^{-2qr})^s$ (VIII, 644).

15) $\int Ci(x)\,.\,Cos^s\,r\,x\,.\,Sin\,s\,r\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.\,(e^{-sqr}-e^{sqr})\,(e^{qr}+e^{-qr})^s$ (VIII, 645).

16) $\int Ci(x)\,.\,Cos^s\,r\,x\,.\,Cos\,s\,r\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q)\,.\,(e^{sqr}+e^{-sqr})\,(e^{qr}+e^{-qr})^s$ (VIII, 644).

17) $\int Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-s\,r\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(-q)-Ei(q)\}\,\{(1-e^{-2qr})^s-1\}$
(VIII, 647).

18) $\int Si(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-s\,r\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(1-e^{-2qr})^s$
(VIII, 646).

19) $\int Ci(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-s\,r\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.\,\{(-1)^s\,e^{sqr}-e^{-sqr}\}\,(e^{qr}-e^{-qr})^s$
(VIII, 647).

20) $\int Ci(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}s\pi-s\,r\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q)\,.\,\{(-1)^s\,e^{sqr}+e^{-sqr}\}\,(e^{qr}-e^{-qr})^s$
(VIII, 646).

21) $\int Si(x)\,.\,Cos^s\,r\,x\,.\,Sin\,t\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(q)-Ei(-q)\}\,(e^{qr}+e^{-qr})^s\,e^{-qt}$ (VIII, 653).

22) $\int Si(x)\,.\,Cos^s\,r\,x\,.\,Cos\,t\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,\{Ei(-q)-Ei(q)\}\,(e^{qr}+e^{-qr})^s\,e^{-qt}$ (VIII, 653).

23) $\int Ci(x)\,.\,Cos^s\,r\,x\,.\,Sin\,t\,x\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.\,(e^{-qt}-e^{qt})\,(e^{qr}+e^{-qr})^s$ (VIII, 653).

24) $\int Ci(x)\,.\,Cos^s\,r\,x\,.\,Cos\,t\,x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,Ei(-q)\,.\,(e^{qt}+e^{-qt})\,(e^{qr}+e^{-qr})^s$ (VIII, 653).

25) $\int Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}s\pi-t\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}q}\,\{Ei(-q)-Ei(q)\}\,(e^{qr}-e^{-qr})^s\,e^{-qt}$
(VIII, 656).

26) $\int Si(x) . Sin^s rx . Cos\left(\frac{1}{2} s\pi - tx\right) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+2}} \{Ei(-q) - Ei(q)\} (e^{qr} - e^{-qr})^s e^{-qt}$ (VIII, 655).

27) $\int Ci(x) . Sin^s rx . Sin\left(\frac{1}{2} s\pi - tx\right) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+2}} Ei(-q) . \{(-1)^s e^{qt} - e^{-qt}\} (e^{qr} - e^{-qr})^s$ (VIII, 656).

28) $\int Ci(x) . Sin^s rx . Cos\left(\frac{1}{2} s\pi - tx\right) \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+2} q} Ei(-q) . \{(-1)^s e^{qt} + e^{-qt}\} (e^{qr} - e^{-qr})^s$ (VIII, 656).

[Dans 21) à 28) on a $t > sr$].

F. Alg. rat. fract. à dén. q^2+x^2;
Circ. Dir. à plusieurs facteurs; TABLE 462. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr + s_1 r_1 + \ldots)x\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots} q} \{Ei(q) - Ei(-q)\} \{(1+e^{-2qr})^s (1+e^{-2qr_1})^{s_1} \ldots - 1\}$ (VIII, 645).

2) $\int Si(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr + s_1 r_1 + \ldots)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}} \{Ei(-q) - Ei(q)\} (1+e^{-2qr})^s (1+e^{-2qr_1})^{s_1} \ldots$ (VIII, 645).

3) $\int Ci(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr + s_1 r_1 + \ldots)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}} Ei(-q) . \{e^{-(sr+s_1r_1+\ldots)q} - e^{(sr+s_1r_1+\ldots)q}\} (e^{qr} + e^{-qr})^s (e^{qr_1} + e^{-qr_1})^{s_1} \ldots$ (VIII, 656).

4) $\int Ci(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr + s_1 r_1 + \ldots)x\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots} q} Ei(-q) . \{e^{(sr+s_1r_1+\ldots)q} + e^{-(sr+s_1r_1+\ldots)q}\} (e^{qr} + e^{-qr})^s (e^{qr_1} + e^{-qr_1})^{s_1} \ldots$ (VIII, 645).

5) $\int Si(x) . Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\{(s + s_1 + \ldots)\frac{1}{2}\pi - (sr + s_1 r_1 + \ldots)x\} \frac{dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots} q} \{Ei(-q) - Ei(q)\} \{(1-e^{-2qr})^s (1-e^{-2qr_1})^{s_1} \ldots - 1\}$ (VIII, 648).

6) $\int Si(x) . Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\{(s + s_1 + \ldots)\frac{1}{2}\pi - (sr + s_1 r_1 + \ldots)x\} \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{2+s+s_1+\ldots}} \{Ei(-q) - Ei(q)\} (1-e^{-2qr})^s (1-e^{-2qr_1})^{s_1} \ldots$ (VIII, 647).

7) $\int Ci(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+s_1+\ldots}}Ei(-q)\,.\left\{(-1)^{s+s_1+\ldots}e^{(sr+s_1r_1+\ldots)q}-e^{-(sr+s_1r_1+\ldots)q}\right\}(e^{qr}-e^{-qr})^s$

$(e^{qr_1}-e^{-qr_1})^{s_1}\ldots$ (VIII, 648).

8) $\int Ci(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+s_1+\ldots}q}Ei(-q)\,.\left\{(-1)^{s+s_1+\ldots}e^{(sr+s_1r_1+\ldots)q}+e^{-(sr+s_1r_1+\ldots)q}\right\}(e^{qr}-e^{-qr})^s$

$(e^{qr_1}-e^{-qr_1})^{s_1}\ldots$ (VIII, 647).

9) $\int Si(x)\,.\,Cos^s rx\ldots Sin^t ux\ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}\left\{Ei(-q)-Ei(q)\right\}\left\{(1+e^{-2qr})^s\ldots(1-e^{-2qu})^t\ldots-1\right\}$ (VIII, 648).

10) $\int Si(x)\,.\,Cos^s rx\ldots Sin^t ux\ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}}\left\{Ei(-q)-Ei(q)\right\}(1+e^{-2qr})^s\ldots(1-e^{-2qu})^t\ldots$ (VIII, 648).

11) $\int Ci(x)\,.\,Cos^s rx\ldots Sin^t ux\ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{x\,dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}}Ei(-q)\,.\left\{(-1)^{t+\ldots}e^{(sr+\ldots+tu+\ldots)q}-e^{-(sr+\ldots+tu+\ldots)q}\right\}(e^{qr}+e^{-qr})^s\ldots$

$(e^{qu}-e^{-qu})^t\ldots$ (VIII, 649).

12) $\int Ci(x)\,.\,Cos^s rx\ldots Sin^t ux\ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{dx}{q^2+x^2}=$

$=\frac{\pi}{2^{2+s+\ldots+t+\ldots}q}Ei(-q)\,.\left\{(-1)^{t+\ldots}e^{(sr+\ldots+tu+\ldots)q}+e^{-(sr+\ldots+tu+\ldots)q}\right\}(e^{qr}+e^{-qr})^s\ldots$

$(e^{qu}-e^{-qu})^t\ldots$ (VIII, 648).

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. à un ou deux facteurs; TABLE 463. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(rx)\,.\,Sin\,px\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Cos\,pq\,.\,Si(qr)\,[p\geqq r],=-\frac{\pi}{2q}Cos\,pq\,.\,Si(pq)+$

$+\frac{\pi}{2q}Sin\,pq\,.\left\{Ci(pq)-Ci(qr)\right\}[p\leqq r]$ (VIII, 461).

2) $\int Si(rx).Cos\,px\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,pq.Si(qr)[p>r], =\frac{\pi}{2}Sin\,pq.Si(pq)-$
$-\frac{\pi}{2}Cos\,pq.\{Ci(qr)-Ci(pq)\}\,[p<r]$ (VIII, 469).

3) $\int Si(rx).Cos\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,qr.Si(qr)$ (VIII, 469).

4) $\int Ci(rx).Sin\,px\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,pq.\left\{\frac{\pi}{2}-Si(qr)\right\}[p<r], =\frac{\pi}{2}Cos\,pq.\{Ci(qr)-Ci(pq)\}+$
$+\frac{\pi}{2}Sin\,pq.\left\{\frac{\pi}{2}-Si(pq)\right\}[p>r]$ (VIII, 470).

5) $\int Ci(rx).Sin\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Sin\,qr.\left\{\frac{\pi}{2}-Si(qr)\right\}$ (VIII, 470).

6) $\int Ci(rx).Cos\,px\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Cos\,pq.\left\{\frac{\pi}{2}-Si(qr)\right\}[p\leqq r], =\frac{\pi}{2q}Sin\,pq.\{Ci(qr)-Ci(pq)\}-$
$-\frac{\pi}{2q}Cos\,pq.\left\{\frac{\pi}{2}-Si(pq)\right\}[p\geqq r]$ (VIII, 462).

7) $\int Si(x).Sin\,4srx.Tg\,rx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Si(q).Sin^2 2sqr.Tg\,qr$ (VIII, 663).

8) $\int Si(x).Sin^2 2srx.Tg\,rx\frac{dx}{q^2-x^2}=-\frac{\pi}{4q}Si(q).\{1+Sin\,4sqr.Tg\,qr\}$ (VIII, 663).

9) $\int Si(x).Sin\,2srx.Cot\,rx\frac{x\,dx}{q^2-x^2}=\pi\,Si(q).Sin^2 sqr.Cot\,qr$ (VIII, 662).

10) $\int Si(x).Sin^2 srx.Cot\,rx\frac{dx}{q^2-x^2}=\frac{\pi}{4q}Si(q).\{1-Sin\,2sqr.Cot\,qr\}$ (VIII, 662).

11) $\int Si(x).Sin\,2srx.Cosec\,rx\frac{x\,dx}{q^2-x^2}=\pi\,Si(q).Sin^2 sqr.Cosec\,qr$ (VIII, 663).

12) $\int Si(x).Sin^2 srx.Cosec\,rx\frac{dx}{q^2-x^2}=-\frac{\pi}{4q}Si(q).Sin\,2sqr.Cosec\,qr$ (VIII, 663).

13) $\int Si(x).Cos^s rx.Sin\,srx\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\{2^{-s}-Cos^s qr.Cos\,sqr\}$ (VIII, 645).

14) $\int Si(x).Cos^s rx.Cos\,srx\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{Si(q).Cos^s qr.Sin\,sqr-2^{-s}Ci(q)\}$ (VIII, 645).

15) $\int Si(x).Sin^s rx.Sin\left\{\frac{1}{2}s\pi-srx\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\left\{-2^{-s}+Sin^s qr.Cos\left(\frac{1}{2}s\pi-sqr\right)\right\}$
(VIII, 647).

16) $\int Si(x) . Sin^s rx . Cos\left\{\frac{1}{2}s\pi - srx\right\}\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2}\left\{2^{-s} Ci(q) + Si(q) . Sin^s qr . Sin\left(\frac{1}{2}s\pi - sqr\right)\right\}$ (VIII, 647).

17) $\int Si(x) . Cos^s rx . Sin\,tx \frac{dx}{q^2-x^2} = -\frac{\pi}{2q} Si(q) . Cos^s qr . Cos\,qt$ (VIII, 653).

18) $\int Si(x) . Cos^s rx . Cos\,tx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Si(q) . Cos^s qr . Sin\,qt$ (VIII, 653).

19) $\int Si(x) . Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{q^2-x^2} = \frac{\pi}{2q} Si(q) . Sin^s qr . Cos\left(\frac{1}{2}s\pi - qt\right)$ (VIII, 656).

20) $\int Si(x) . Sin^s rx . Cos\left(\frac{1}{2}s\pi - tx\right)\frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Si(q) . Sin^s qr . Sin\left(\frac{1}{2}s\pi - qt\right)$ (VIII, 656).

[Dans 17) à 20) on a $t > sr$].

F. Alg. rat. fract. à dén. q^2-x^2;
Circ. Dir. à plusieurs facteurs; TABLE 464. Lim. 0 et ∞.
Autre Fonction.

1) $\int Si(x) . Sin\,srx . Sin\{(s-1)rx\} . Cosec\,rx \frac{dx}{q^2-x^2} = \frac{\pi}{4q} Si(q) . \{1 + Cos\,2sqr - Sin\,2sqr . Cot\,qr\}$ (VIII, 660).

2) $\int Si(x) . Sin\,srx . Cos\{(s-1)rx\} . Cosec\,rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{4}[Ci(q) + Si(q) . \{Sin\,2sqr -$
$- (1 - Cos\,2sqr)\,Cot\,qr\}]$ (VIII, 660).

3) $\int Si(x) . Sin\,2srx . Cos\{(2s+1)rx\} . Sec\,rx \frac{dx}{q^2-x^2} = \frac{\pi}{4q} Si(q) . \{1 - Cos\,4sqr + Sin\,4sqr . Tg\,qr\}$ (VIII, 661).

4) $\int Si(x) . Cos\,2srx . Cos\{(2s+1)rx\} . Sec\,rx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{4}[Si(q) . \{Sin\,4sqr -$
$- (1 - Cos\,4sqr)\,Tg\,qr\} - Ci(q)]$ (VIII, 661).

5) $\int Si(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Sin\{(sr + s_1 r_1 + \ldots)x\}\frac{dx}{q^2-x^2} = \frac{\pi}{2q} Si(q) . [2^{-s-s_1-\cdots} -$
$- Cos^s qr . Cos^{s_1} qr_1 \ldots Cos\{(sr + s_1 r_1 + \ldots)q\}]$ (VIII, 646).

6) $\int Si(x) . Cos^s rx . Cos^{s_1} r_1 x \ldots Cos\{(sr + s_1 r_1 + \ldots)x\}\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}[Si(q) . Cos^s qr . Cos^{s_1} qr_1 \ldots$
$Sin\{(sr + s_1 r_1 + \ldots)q\} - 2^{-s-s_1-\cdots} Ci(q)]$ (VIII, 646).

7) $\int Si(x) . Sin^s rx . Sin^{s_1} r_1 x \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{dx}{q^2-x^2}=$

$=\frac{\pi}{2q} Si(q) . \left[-2^{-s-s_1-\cdots}+Sin^s qr . Sin^{s_1} qr_1 \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)q\right\}\right]$ (VIII, 648).

8) $\int Si(x) . Sin^s rx . Sin^{s_1} r_1 x \ldots Cos\left\{(s+s_1+\ldots)\frac{1}{2}\pi-(sr+s_1r_1+\ldots)x\right\}\frac{x\,dx}{q^2-x^2}=$

$=-\frac{\pi}{2}\left[2^{-s-s_1-\cdots} Ci(q)+Si(q) . Sin^s qr . Sin^{s_1} qr_1 \ldots Sin\left\{(s+s_1+\ldots)\frac{1}{2}\pi-\right.\right.$

$\left.\left.-(sr+s_1r_1+\ldots)q\right\}\right]$ (VIII, 648).

9) $\int Si(x) . Cos^s rx \ldots Sin^t ux \ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{dx}{q^2-x^2}=$

$=\frac{\pi}{2q} Si(q) . \left[-2^{-s-\cdots-t-\cdots}+Cos^s qr \ldots Sin^t qu \ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-\right.\right.$

$\left.\left.-(sr+\ldots+tu+\ldots)q\right\}\right]$ (VIII, 649).

10) $\int Si(x) . Cos^s rx \ldots Sin^t ux \ldots Cos\left\{(t+\ldots)\frac{1}{2}\pi-(sr+\ldots+tu+\ldots)x\right\}\frac{x\,dx}{q^2-x^2}=$

$=-\frac{\pi}{2}\left[2^{-s-\cdots-t-\cdots} Ci(q)+Si(q) . Cos^s qr \ldots Sin^t qu \ldots Sin\left\{(t+\ldots)\frac{1}{2}\pi-\right.\right.$

$\left.\left.-(sr+\ldots+tu+\ldots)q\right\}\right]$ (VIII, 649).

F. Algébrique;
Circulaire Directe; TABLE 465. Lim. 0 et ∞.
Autre Fonction. Autre forme; $[p^2<1]$.

1) $\int Si(x)\frac{Sin\,rx-p^{s-1}\,Sin\,srx+p^s\,Sin\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{dx}{q^2+x^2}=\frac{\pi}{4q}\{Ei(q)-$

$-Ei(-q)\}\frac{e^{-qr}-p^{s-1}e^{-sqr}}{1-pe^{-qr}}$ (VIII, 664).

2) $\int Si(x)\frac{1-p\,Cos\,rx-p^s\,Cos\,srx+p^{s+1}\,Cos\{(s-1)rx\}}{1-2p\,Cos\,rx+p^2}\,\frac{x\,dx}{q^2+x^2}=\frac{\pi}{4}\{Ei(-q)-$

$-Ei(q)\}\frac{1-p^s e^{-sqr}}{1-pe^{-qr}}$ (VIII, 664).

F. Algébrique;
Circulaire Directe;
Autre Fonction. Autre forme; $[p^2 < 1]$.

TABLE 465, suite.

Lim. 0 et ∞.

3) $\int Ci(x) \frac{Sin\, r x - p^{s-1} Sin\, s r x + p^s Sin\{(s-1) r x\}}{1 - 2p\, Cos\, r x + p^2} \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{4p} Ei(-q) . \left\{ \frac{1 - p^s e^{-s q r}}{1 - p e^{-q r}} - \right.$
$\left. - \frac{1 - p^s e^{s q r}}{1 - p e^{q r}} \right\}$ (VIII, 664).

4) $\int Ci(x) \frac{1 - p\, Cos\, r x - p^s\, Cos\, s r x + p^{s+1} Cos\{(s-1) r x\}}{1 - 2p\, Cos\, r x + p^2} \frac{x\, dx}{q^2 + x^2} = \frac{\pi}{4q} Ei(-q) .$
$\left\{ \frac{1 - p^s e^{s q r}}{1 - p e^{q r}} - \frac{1 - p^s e^{-s q r}}{1 - p e^{-q r}} \right\}$ (VIII, 664).

5) $\int Si(x) \frac{Sin\, r x - p^{s-1} Sin\, s r x + p^s Sin\{(s-1) r x\}}{1 - 2p\, Cos\, r x + p^2} \frac{dx}{q^2 - x^2} = \frac{\pi}{2q} Si(q) .$
$\frac{p - Cos\, q r + p^{s-1} Cos\, s q r - p^s Cos\{(s-1) q r\}}{1 - 2p\, Cos\, q r + p^2}$ (VIII, 664).

6) $\int Si(x) \frac{1 - p\, Cos\, r x - p^s\, Cos\, s r x + p^{s+1} Cos\{(s-1) r x\}}{1 - 2p\, Cos\, r x + p^2} \frac{x\, dx}{q^2 - x^2} = \frac{\pi}{2} \left\{ - Ci(q) + p\, Si(q) . \right.$
$\left. \frac{Sin\, q r - p^{s-1} Sin\, s q r + p^s Sin\{(s-1) q r\}}{1 - 2p\, Cos\, q r + p^2} \right\}$ (VIII, 664).

7) $\int \Upsilon(p, x) \frac{Sin\, x}{\sqrt{1 - p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1 - p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1 - p^2)}{p}$
(VIII, 417).

8) $\int \Upsilon(p, x) \frac{Tg\, x}{\sqrt{1 - p^2 Sin^2 x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1 - p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1 - p^2)}{p}$
(VIII, 417).

9) $\int \Upsilon(p, 2x) \frac{Tg\, x}{\sqrt{1 - p^2 Sin^2 2x}} \frac{dx}{x} = \frac{\pi}{12} \mathrm{F}' \{ \sqrt{1 - p^2} \} + \frac{1}{6} \mathrm{E}'(p) . [\mathrm{F}'(p)]^2 - \frac{1}{6} \mathrm{F}'(p) . l \frac{4(1 - p^2)}{p}$
(VIII, 417).

F. Algébrique;
Circulaire Inverse;
Autre Fonction.

TABLE 466.

Lim. diverses.

1) $\int_0^1 \mathrm{F}(p, Arcsin\, x) \frac{x\, dx}{1 + p x^2} = \frac{1}{4p} \mathrm{F}'(p) . l \frac{(1 + p)\sqrt{p}}{2} + \frac{\pi}{16p} \mathrm{F}' \{ \sqrt{1 - p^2} \}$ (VIII, 548).

2) $\int_0^1 \mathrm{F}(p, Arcsin\, x) \frac{x\, dx}{1 - p x^2} = \frac{1}{4p} \mathrm{F}'(p) . l \frac{2}{(1 - p)\sqrt{p}} - \frac{\pi}{16p} \mathrm{F}' \{ \sqrt{1 - p^2} \}$ (VIII, 548).

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3) $\int_0^1 \mathrm{F}(p, Arcsin\, x)\, \frac{x\,dx}{1-p^2 x^4} = \frac{1}{8p}\mathrm{F}'(p).\, l\, \frac{1+p}{1-p}$ (VIII, 548).

4) $\int_0^1 \mathrm{F}(p, Arcsin\, x)\, \frac{x^3\,dx}{1-p^2 x^4} = \frac{1}{8p^2}\mathrm{F}'(p).\, l\, \frac{4}{(1-p^2)p} - \frac{\pi}{16p^2}\mathrm{F}'\left\{\sqrt{1-p^2}\right\}$ (VIII, 548).

5) $\int_0^1 \mathrm{F}(p, Arcsin\, x)\, \frac{x\,dx}{1-x^2+x^2\sqrt{1-p^2}} = \frac{1}{4}\, \frac{\mathrm{F}'(p)}{1-\sqrt{1-p^2}}\, l\, \frac{2}{(1+\sqrt{1-p^2})\sqrt[4]{1-p^2}}$ (VIII, 548).

6) $\int_0^1 \mathrm{E}(p, Arcsin\, x)\, \frac{x\,dx}{1-p^2 x^2} = \frac{1}{2p^2}\left[(2-p^2)\mathrm{F}'(p) - \left\{2+\frac{1}{2}l(1-p^2)\right\}\mathrm{E}'(p)\right]$ (VIII, 548).

7) $\int_0^1 \mathrm{F}(p, Arcsin\, x)\, \frac{x}{1-p^2x^2 Sin^2\lambda}\, \frac{dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2 Sin\, 2\lambda}\Big\{\pi\,\mathrm{F}(p,\lambda) -$

$- 2\,\mathrm{F}'(p).Arctg\left[Tg\,\lambda.\sqrt{1-p^2}\right]\Big\}$ (VIII, 548).

8) $\int_0^1 \mathrm{E}(p, Arcsin\, x)\, \frac{x}{1-p^2x^2 Sin^2\lambda}\, \frac{dx}{\sqrt{1-p^2x^2}} = \frac{1}{p^2 Sin\, 2\lambda}\Big\{\pi\,\mathrm{E}(p,\lambda) -$

$- 2\,\mathrm{E}'(p).Arctg\left[Tg\,\lambda.\sqrt{1-p^2}\right] - \pi\, Cot\,\lambda.\left\{1-\sqrt{1-p^2 Sin^2\lambda}\right\}\Big\}$ (VIII, 548).

9) $\int_q^r \mathrm{F}\left\{\sqrt{1-q^2r^2}, Arctg\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2q}\mathrm{F}'\left\{\sqrt{1-q^2r^2}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2}{q^2}\right)}\right\}$
(VIII, 550).

10) $\int_q^r \mathrm{F}\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}, Arccot\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2r}\mathrm{F}'\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{q^2}{r^2}\right)}\right\}$
(VIII, 550).

11) $\int_q^r \mathrm{E}\left\{\sqrt{1-q^2r^2}, Arctg\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2q}\mathrm{E}'\left\{\sqrt{1-q^2r^2}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2}{q^2}\right)}\right\}+$

$+\frac{1-q^2r^2}{2q(1+r^2)}\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2(1+q^2)^2}{q^2(1+r^2)^2}\right)}\right\}$ (VIII, 550).

12) $\int_q^r \mathrm{E}\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}, Arccot\frac{x}{qr}\right\}\frac{dx}{\sqrt{(r^2-x^2)(x^2-q^2)}} = \frac{1}{2r}\mathrm{E}'\left\{\sqrt{\frac{q^2r^2-1}{q^2r^2}}\right\}.\mathrm{F}'\left\{\sqrt{\left(1-\frac{q^2}{r^2}\right)}\right\}-$

$-\frac{1-q^2r^2}{2q^2r(1+r^2)}\mathrm{F}'\left\{\sqrt{\left(1-\frac{r^2(1+q^2)^2}{q^2(1+r^2)^2}\right)}\right\}$ (VIII, 551).

F. Exponentielle; Logarithmique; Circulaire Directe. — TABLE 467. — Lim. 0 et ∞.

1) $\int e^{-px}lx.Sin\,qx\,dx = \frac{1}{p^2+q^2}\left\{p\,Arctg\frac{q}{p} - qA - \frac{q}{2}l(p^2+q^2)\right\}$ (IV, 563).

2) $\int e^{-px}lx.Cos\,qx\,dx = \frac{-1}{p^2+q^2}\left\{\frac{p}{2}l(p^2+q^2) + q\,Arctg\frac{q}{p} + pA\right\}$ (IV, 563).

3) $\int e^{-px}lx.Sin^2qx\,dx = \frac{1}{p(p^2+4q^2)}\left\{2pq\,Arctg\frac{2q}{p} + \frac{1}{2}p^2l(p^2+4q^2) - (p+4q^2)lp - 4q^2A\right\}$
V. T. 256, N. 2 et T. 467, N. 2.

4) $\int e^{-2px}l(Sin^2qx).dx = -\frac{1}{p}l2 - p\sum_1^\infty\frac{1}{n}\frac{1}{p^2+n^2q^2}$ (IV, 563).

5) $\int e^{-2px}l(Cos^2qx).dx = -\frac{1}{p}l2 - p\sum_1^\infty\frac{(-1)^n}{n}\frac{1}{p^2+n^2q^2}$ (IV, 563).

6) $\int e^{-2px}l(Tg^2qx).dx = -2p\sum_1^\infty\frac{1}{2n-1}\frac{1}{p^2+(2n-1)^2q^2}$ V. T. 467, N. 4, 5.

7) $\int e^{-x^2}l(Sin^2qx).dx = \sqrt{\pi}.\left\{-l2 + \sum_1^\infty\frac{1}{n}e^{-(nq)^2}\right\}$ (IV, 563).

8) $\int e^{-x^2}l(Cos^2qx).dx = \sqrt{\pi}.\left\{-l2 + \sum_1^\infty\frac{(-1)^n}{n}e^{-(nq)^2}\right\}$ (IV, 563).

9) $\int e^{-x^2}l(Tg^2qx).dx = 2\sqrt{\pi}.\sum_1^\infty\frac{-1}{2n-1}e^{-(2n-1)^2q^2}$ V. T. 467, N. 7, 8.

10) $\int e^{-x^2}l(1-2p\,Cos\,2ax+p^2).dx = \sqrt{\pi}.\sum_1^\infty\frac{1}{n}p^na^{-a^2n^2}$ (IV, 563).

11) $\int l(1-2e^{-px}Cos\,qx+e^{-2px}).dx = -\frac{p\pi^2}{3(p^2+q^2)}$

12) $\int l(1+2e^{-px}Cos\,qx+e^{-2px}).dx = \frac{p\pi^2}{6(p^2+q^2)}$ Sur 11) et 12) v. Boole, Mathem. 1. 297.

F. Exponent. monôme; Logarithmique; Circulaire Directe entière. — TABLE 468. — Lim. 0 et $\frac{\pi}{2}$.

1) $\int l(1-e^{-2q\pi\,Tgx}).dx = -\pi\left\{q(lq-1) + \frac{1}{2}l2q\pi - l\Gamma(q+1)\right\}$ V. T. 354, N. 6.

2) $\int e^{-2q\,Sec\,x}l(2\,Sec\,x-1).Tg\,x\,dx = \frac{1}{2}\left\{li(e^{-q})\right\}^2$ V. T. 359, N. 1.

3) $\int e^{p\,Cos\,2x}\, l\,Sin\,x\,.\,Cos\,(p\,Sin\,2x+2x)\,dx=\frac{\pi}{4p}(1-e^{-p})$ V. T. 271, N. 8.

4) $\int e^{p\,Cos\,2x}\, l\,Cos\,x\,.\,Cos\,(p\,Sin\,2x+2x)\,dx=\frac{\pi}{4p}(1-e^{p})$ V. T. 272, N. 5.

5) $\int e^{p\,Cos\,2x}\, l\,Tg\,x\,.\,Cos\,(p\,Sin\,2x+2x)\,dx=\frac{\pi}{4p}(e^{p}-e^{-p})$ V. T. 278, N. 1.

6) $\int e^{p\,Cos\,2x}\, l\,Tg^2\left(\frac{\pi}{4}\pm x\right).\,Sin\,(p\,Sin\,2x+2x)\,dx=\pm\infty$ V. T. 278, N. 2.

F. Exponent. monôme; Logarithmique; Circulaire Directe fract. TABLE 469. Lim. 0 et $\frac{\pi}{2}$.

1) $\int e^{-q\,Cot\,x}\, l\,Sin\,x\,\frac{dx}{Sin^2 x}=\frac{1}{q}\left[Cos\,q\,.Ci(q)-Sin\,q\,.\left\{\frac{1}{2}\pi-Si(q)\right\}\right]$ V. T. 272, N. 2.

2) $\int e^{-p\,Tg^2 x}\, l\,Tg\,x\,.Tg^{2a}x\,\frac{2p\,Sin^2 x-(2a-1)\,Cos^2 x}{Sin^2 2x}\,dx=\frac{1}{8(2p)^{a-1}}\,1^{a-1/2}\sqrt{\frac{\pi}{p}}$ V. T. 272, N. 7.

3) $\int e^{-p\,Tg^2 x}\, l\,Tg\,x\,.Tg^{2a+1}x\,\frac{p\,Sin^2 x-a\,Cos^2 x}{Sin^2 2x}\,dx=\frac{1}{2^{a+3}p^{a}}\,1^{a-1/1}$ V. T. 272, N. 6.

4) $\int e^{-q(Tg^2 x+Cot^2 x)}\, l\,Tg\,x\,.\,Tg^{2a+1}x\,\frac{(2a+1)\,Sin\,2x+2q\,Cos\,2x}{Sin^3 2x}\,dx=-\frac{1}{32}\,e^{-2q}\sqrt{\frac{\pi}{q}}\,.$

$\sum_{0}^{a+1}\frac{1}{(2q)^n}\,\frac{(a-n+1)^{2n/1}}{2^n\,1^{n/1}}$ V. T. 272, N. 18.

5) $\int e^{-Tg^{2p}x}\, l\,Tg\,x\,.\,Tg^{2p}x\,\frac{2\,Sin^{2p}x-Cos^{2p}x}{Sin^{p+1}2x}\,dx=\frac{1}{2^{p+2}p^2}\sqrt{\pi}$ V. T. 272, N. 8.

6) $\int e^{-q\,Tg\,x}\, l\,Cos\,x\,\frac{dx}{Cos^2 x}=\frac{1}{q}\left[Ci(q)\,.\,Cos\,q-Sin\,q\,.\left\{\frac{\pi}{2}-Si(q)\right\}\right]$ V. T. 271, N. 3.

7) $\int e^{-p\,Tg\,x}\, l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{dx}{Cos^2 x}=\pm\frac{2}{p}\left\{e^{p}\,Ei(-p)-e^{-p}\,Ei(p)\right\}$ V. T. 272, N. 3.

8) $\int e^{-p\,Tg\,x}\, l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{p\,Sin\,x-Cos\,x}{Cos^3 x}\,dx=\mp 2\left\{e^{-p}\,Ei(p)+e^{p}\,Ei(-p)\right\}$ V. T. 272, N. 4.

9) $\int e^{-p\,Tg\,x}\, l\,Tg^2\left(\frac{\pi}{4}\pm x\right)\frac{Tg\,x}{Cos^2 x}\,dx=\mp\frac{1}{p}\left\{(1+p)e^{-p}\,Ei(p)-(1-p)e^{p}\,Ei(-p)\right\}$

V. T. 469, N. 7, 8.

10) $\int l\, Tg\, x \,.\, (p\, e^{-p\, Tg\, x} - q\, e^{-q\, Tg\, x}) \frac{dx}{Cos^2 x} = l \frac{q}{p}$ V. T. 272, N. 14.

11) $\int e^{-Tg^p x}\, l\, Tg\, x \,.\, Tg^{q-1} x \frac{p\, Sin^p x - q\, Cos^q x}{Cos^{p+2} x}\, dx = \frac{1}{p}\, \Gamma\left(\frac{q}{p}\right)$ V. T. 272, N. 8.

12) $\int e^{2\, q\, Cosec\, x}\, l\, (2\, Cosec\, x - 1) \frac{dx}{Tg x} = \frac{1}{2} \left\{ li(e^{-q}) \right\}^2$ V. T. 359, N. 1.

13) $\int e^{-p\, Cot\, x}\, l\, Tg^2 \left(\frac{\pi}{q} \pm x\right) \frac{p\, Cot\, x - 1}{Sin^2 x}\, dx = \pm 2 \left\{ e^{-p}\, Ei(p) + e^p\, Ei(-p) \right\}$ V. T. 273, N. 1.

14) $\int e^{-Tg^2 x}\, l\, Tg\, x \frac{1 - Cos\, 2\, x \,.\, Sin^2 x}{Cos^2 x \,.\, Sin^2\, 2\, x} = \frac{3}{8} \sqrt{\pi}$ V. T. 272, N. 9.

15) $\int e^{-Tg^2 x}\, l\, Sin\, 2\, x \frac{1 - Cos\, 2\, x \,.\, Sin^2 x}{Cos^2 x \,.\, Sin^2\, 2\, x}\, dx = \frac{1}{8} \sqrt{\pi}$ V. T. 272, N. 10.

16) $\int e^{-q\, Tg\, x}\, l\, Tg\, x \frac{q\, Sin\, x - p\, Cos\, x}{Sin\, 2\, x} \frac{Tg^p x}{Cos x}\, dx = \frac{1}{2\, q^p}\, \Gamma(p)$ V. T. 272, N. 1.

17) $\int e^{-p\, Tg\, x}\, l\, Cos\, x \frac{2\, Tg\, 2\, x \,.\, Cos^2 x - p}{Cos^2 x \,.\, Cos\, 2\, x}\, dx = \frac{1}{2} \left\{ e^{-p}\, Ei(p) + e^p\, Ei(-p) \right\}$ V. T. 272, N. 4.

18) $\int e^{-Cot^{2p} x}\, l\, Tg\, x \,.\, (Sin^{2p} x - 2\, Cos^{2p} x) \frac{dx}{Sin^{3p+1} x \,.\, Cos^{1-p} x} = \frac{1}{2 p^2} \sqrt{\pi}$ V. T. 273, N. 5.

19) $\int e^{-Cot^p x}\, l\, Tg\, x \frac{q\, Sin^q x - p\, Cos^p x}{Sin^{p+q+1} x \,.\, Cos^{1-q} x}\, dx = \frac{1}{p}\, \Gamma\left(\frac{q}{p}\right)$ V. T. 273, N. 5.

20) $\int e^{-p\, Cot^2 x}\, l\, Tg\, x \frac{(2\, a + 1)\, Sin^2 x - 2\, p\, Cos^2 x}{Sin^2\, 2\, x \,.\, Tg^{2\, a+2} x}\, dx = \frac{1}{8\, (2\, p)^a}\, 1^{a/2} \sqrt{\frac{\pi}{p}}$ V. T. 273, N. 4.

21) $\int e^{-p\, Cot^2 x}\, l\, Tg\, x \frac{q\, Sin^2 x - p\, Cos^2 x}{Sin^4 x \,.\, Tg^{2\, a-1} x}\, dx = \frac{1}{4 p^a}\, 1^{a-1/1}$ V. T. 273, N. 3.

22) $\int e^{-q\, (Tg^2 x + Cot^2 x)}\, l\, Tg\, x \frac{(2\, a + 1)\, Sin\, 2\, x - 2\, q\, Cos\, 2\, x}{Tg^{2\, a+1} x \,.\, Sin^3\, 2\, x}\, dx = -\frac{1}{32}\, e^{-2\, q} \sqrt{\frac{\pi}{q}} \,.$

$\sum_{0}^{a+1} \frac{1}{(2\, q)^n} \frac{(a - n + 1)^{2\, n/1}}{2^n\, 1^{n/1}}$ V. T. 273, N. 6.

23) $\int e^{-q\, Cot x}\, l\, Tg\, x \frac{p\, Sin\, x - q\, Cos\, x}{Sin\, 2\, x \,.\, Sin\, x \,.\, Tg^p x}\, dx = -\frac{1}{2\, q^p}\, \Gamma(p)$ V. T. 273, N. 2.

24) $\int e^{-q\, Tg\, x}\, l\, Tg\, x \frac{dx}{Cos\, x \sqrt{Sin\, 2\, x}} = -(l\, 4\, q + A) \sqrt{\frac{\pi}{2\, q}}$ V. T. 357, N. 5.

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F. Exponent. monôme;
Logarithmique;
Circulaire Directe fract.

TABLE 469, suite.

Lim. 0 et $\frac{\pi}{2}$.

25) $\int e^{-p\,Tg\,x}\, l(q\,Cos\,x)\frac{p\,q\,l(q\,Cos\,x)+2\,Cos^2 x}{Cos^2 x}\,dx = -\frac{q}{4}(lq)^2$ V. T. 354, N. 8.

26) $\int e^{-p\,Tg\,x}\, l\left(\frac{q^2\;Cos\,2\,x}{Cos^2\,x}\right)\frac{p\,q\,Cos\,2\,x\,.\,l(q^2\,Cos2\,x\,.\,Sec^2 x)-4\,Cos^2 x}{Cos\,2\,x\,.\,Cos^2\,x}\,dx = q\,(lq)^2$ V. T. 354, N. 9.

F. Exponent. binôme;
Logarithmique;
Circulaire Directe fract.

TABLE 470.

Lim. 0 et $\frac{\pi}{2}$.

1) $\int \frac{l\,Cos\,x}{(e^{\pi\,Tg\,x}-e^{-\pi\,Tg\,x})^2}\,\frac{dx}{Cos^2\,x} = \frac{1}{8\,\pi}(1-2\,A)$ V. T. 274, N. 7.

2) $\int \frac{l\,Cos\,x}{(e^{q\,Tg\,x}-1)^2}\,e^{q\,Tg\,x}\,\frac{dx}{Cos^2\,x} = \frac{1}{2\,q}\left\{l\frac{2\,\pi}{q}-\frac{\pi}{q}+Z'\left(\frac{q+2\,\pi}{2\,\pi}\right)\right\}$ V. T. 274, N. 8.

3) $\int \frac{e^{\frac{1}{2}\pi\,Tg\,x}+e^{-\frac{1}{2}\pi\,Tg\,x}}{(e^{\frac{1}{2}\pi\,Tg\,x}-e^{-\frac{1}{2}\pi\,Tg\,x})^2}\,\frac{l\,Cos\,x}{Cos^2\,x}\,dx = \frac{1}{2\,\pi}(2-\pi)$ V. T. 274, N. 5.

4) $\int \frac{e^{\frac{1}{4}\pi\,Tg\,x}+e^{-\frac{1}{4}\pi\,Tg\,x}}{(e^{\frac{1}{4}\pi\,Tg\,x}-e^{-\frac{1}{4}\pi\,Tg\,x})^2}\,\frac{l\,Cos\,x}{Cos^2\,x}\,dx = \frac{4}{\pi}\left\{1-\frac{\pi}{2\sqrt{2}}+\frac{1}{2\sqrt{2}}\,l\frac{\sqrt{2}-1}{\sqrt{2}+1}\right\}$ V. T. 274, N. 4.

F. Exponentielle;
Logarithmique;
Circulaire Directe.

TABLE 471.

Lim. diverses.

1) $\int_0^{\frac{1}{4}\pi} e^{-2\,q\,Cot\,x}\, l(2\,Cot\,x-1)\,\frac{dx}{Sin\,2\,x} = \frac{1}{4}\left\{li(e^{-q})\right\}^2$ V. T. 359, N. 1.

2) $\int_0^{\pi} e^{2\,\pi\,a\,x\,i}\, l(Sin\,\pi\,x)\,.\,dx = -\frac{1}{2\,a}$ (IV, 564).

3) $\int_0^{\pi} e^{p\,Cos\,x}\, l\left(\frac{1}{2}\,Sin\,x\right).\,Cos\,(p\,Sin\,x+x)\,dx = -\frac{\pi}{4p}(e^{\frac{1}{2}p}-e^{-\frac{1}{2}p})^2$ V. T. 468, N. 3, 4.

4) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}(e^{p\,x}+e^{-p\,x})\,Sin\,(p\,l\,Cos\,x)\,dx = -2\,\pi\,Sin\,(p\,l\,2)$ V. T. 485, N. 14.

5) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi}(e^{p\,x}-e^{-p\,x})\,Cos\,(p\,l\,Cos\,x)\,dx = 2\,\pi\,Cos\,(p\,l\,2)$ V. T. 485, N. 15.

6) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{2\,x\,i-p\,e^{2\,x\,i}}\, l(Cos\,x)\,.\,dx = \frac{\pi}{2}\,\frac{e^p-1}{p}$ V. T. 468, N. 4.

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7) $\int_{-\frac{1}{2}\pi}^{\frac{1}{2}\pi} e^{-p\,Cos\,2x}\, l\,(Cos\,x).Cos\,(p\,Sin\,2x-2x)\,dx = \frac{\pi}{2p}(e^p-1)$ V. T. 468, N. 4.

8) $\int_{-\infty}^{\infty}\left\{\frac{l\left\{1-\frac{2q}{e^{p(x-ri)}-e^{-p(x-ri)}}\right\}}{i\,Sin\left\{\pi(x-ri)\right\}}-\frac{l\left\{1-\frac{2q}{e^{p(x+ri)}-e^{-p(x+ri)}}\right\}}{i\,Sin\left\{\pi(x+ri)\right\}}\right\}dx=\frac{2}{\pi}\left\{l\frac{q\pi}{2p}-\right.$

$\left.-l\,Tg\left[\frac{\pi}{2p}l\left\{q+\sqrt{1+q^2}\right\}\right]+\sum_{-\infty}^{\infty}(-1)^n\,l\left(1+\frac{2q}{e^{pn}-e^{-pn}}\right)\right\}$ $[pr<\pi]$

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F. Exponentielle;
Circulaire Directe;
Circulaire Inverse.

TABLE 472.

Lim. diverses.

1) $\int_0^1 Arctg\,(e^{-x}).Sin\,px\,dx=\frac{\pi}{4p}\frac{(e^{\frac{1}{2}p\pi}-1)^2}{e^{p\pi}+1}$ V. T. 264, N. 14.

2) $\int_0^1 Sin\left[\lambda+Arctg\left\{Tg\,(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=(e^{-Sin\,\lambda}-e^{Sin\,\lambda})\,Cos\,(Cos\,\lambda)$ (VIII, 629).

3) $\int_0^1 Cos\left[\lambda+Arctg\left\{Tg\,(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=(e^{Sin\,\lambda}+e^{-Sin\,\lambda})\,Sin\,(Cos\,\lambda)$ (VIII, 629).

4) $\int_0^1 Sin\left[\lambda+Cos\,\lambda+Arctg\left\{Tg(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=e^{-Sin\,\lambda}-e^{Sin\,\lambda}\,Cos\,(2\,Cos\,\lambda)$ V. T. 472, N. 2, 3.

5) $\int_0^1 Cos\left[\lambda+Cos\,\lambda+Arctg\left\{Tg\,(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=e^{Sin\,\lambda}\,Sin\,(2\,Cos\,\lambda)$ V. T. 472, N. 2, 3.

6) $\int_0^1 Sin\left[\lambda-Cos\,\lambda+Arctg\left\{Tg\,(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=e^{-Sin\,\lambda}\,Cos\,(2\,Cos\,\lambda)-e^{Sin\,\lambda}$ V. T. 472, N. 2, 3.

7) $\int_0^1 Cos\left[\lambda-Cos\,\lambda+Arctg\left\{Tg\,(x\,Cos\,\lambda)\frac{e^{2x\,Sin\,\lambda}-1}{e^{2x\,Sin\,\lambda}+1}\right\}\right]\sqrt{e^{2x\,Sin\,\lambda}+e^{-2x\,Sin\,\lambda}+2\,Cos\,(2x\,Cos\,\lambda)}\,dx=$

$=e^{-Sin\,\lambda}\,Sin\,(2\,Cos\,\lambda)$ V. T. 472, N. 2, 3.

F. Exponentielle;
Circulaire Directe;
Circulaire Inverse.

TABLE 472, suite.

Lim. diverses.

8) $\int_0^1 Arctg\,(e^x).Sin\,p\,x\,d\,x = \frac{\pi}{4p}\,\frac{(e^{\frac{1}{2}p\pi}+1)^2}{e^{p\pi}+1}$ V. T. 264, N. 14.

9) $\int_0^\infty Arctg\left(\frac{Sin\,q\,x}{e^{p\,x}-Cos\,q\,x}\right).d\,x = \frac{q\,\pi^2}{6\,(p^2+q^2)}$

10) $\int_0^\infty Arctg\left(\frac{Sin\,q\,x}{e^{p\,x}+Cos\,q\,x}\right).d\,x = \frac{q\,\pi^2}{12\,(p^2+q^2)}$

11) $\int_0^\infty Arctg\left(\frac{2\,p\,e^x\,Cos\,x}{e^{2\,x}-p^2}\right).d\,x = \frac{\pi}{4}\,l\,\frac{1+p}{1-p}$ Sur 9) à 11) v. Boole, Mathem. 1, 197.

F. Exponentielle;
Circulaire Directe;
Autre Fonction.

TABLE 473.

Lim. diverses.

1) $\int_0^\infty li\,(e^{-x}).Sin\,q\,x\,d\,x = -\frac{1}{2\,q}\,l(1+q^2)$ V. T. 473, N. 7.

2) $\int_0^\infty li(e^{-x}).Cos\,q\,x\,d\,x = -\frac{1}{q}\,Arctg\,q$ V. T. 473, N. 8.

3) $\int_0^\infty li\,(e^{-x}).e^x\,Sin\,q\,x\,d\,x = \frac{-1}{1+q^2}\left(\frac{\pi}{2}+q\,l\,q\right)$ (VIII, 459).

4) $\int_0^\infty li\,(e^x).e^{-x}\,Sin\,q\,x\,d\,x = \frac{1}{1+q^2}\left(\frac{\pi}{2}-q\,l\,q\right)$ (VIII, 459).

5) $\int_0^\infty li\,(e^{-x}).e^x\,Cos\,q\,x\,d\,x = \frac{1}{1+q^2}\left(l\,q-\frac{1}{2}\,q\,\pi\right)$ (VIII, 459).

6) $\int_0^\infty li(e^x).e^{-x}\,Cos\,q\,x\,d\,x = \frac{-1}{1+q^2}\left(\frac{1}{2}\,q\,\pi+l\,q\right)$ (VIII, 459).

7) $\int_0^\infty li\,(e^{-x}).e^{-p\,x}\,Sin\,q\,x\,d\,x = \frac{-1}{p^2+q^2}\left\{\frac{q}{2}\,l\,\{(1+p)^2+q^2\}-p\,Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 283, N. 4.

8) $\int_0^\infty li\,(e^{-x}).e^{-p\,x}\,Cos\,q\,x\,d\,x = \frac{-1}{p^2+q^2}\left\{\frac{p}{2}\,l\,\{(1+p)^2+q^2\}+q\,Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 283, N. 4.

9) $\int_0^{\frac{1}{2}\pi} li(e^{-Tg\,x}).Tg^p\,x\,\frac{d\,x}{Sin\,2\,x} = -\frac{1}{2\,p}\,\Gamma\,(p)$ V. T. 400, N. 3.

F. Logarithmique;
Circulaire Directe;
Circulaire Inverse.

TABLE 474.

Lim. diverses.

1) $\int_0^\infty Arctg\frac{p}{x}.\left\{Cos^2 x.l(1+q^2 Tg^2 x)+\frac{2q^2}{Cos^2 x+q^2 Sin^2 x}\right\}\frac{Sin x\, dx}{Cos^2 x}=\frac{2\pi}{e^p+e^{-p}}\, l\left\{1+q\frac{e^p-e^{-p}}{e^p+e^{-p}}\right\}$ (VIII, 420).

2) $\int_0^{\frac{\pi}{2}} l\, Tg x.Cos x.Arctg(p Cos x).dx=\frac{p^2\pi}{2(p^2-1)}\, lp-\frac{\pi}{2}\, l\{p+\sqrt{1+p^2}\}$ V. T. 317, N. 15 et T. 342, N. 2.

3) $\int_0^{\frac{\pi}{2}} l Tg x.Sin x.Arctg(p Sin x).dx=\frac{\pi}{2}\, l\{p+\sqrt{1+p^2}\}-\frac{p^2\pi}{2(p^2-1)}\, lp$ V. T. 317, N. 16 et T. 342, N. 1.

4) $\int_0^{\frac{\pi}{2}}\left\{Sin x.l(1+2p Cos x+p^2)+2\, Cos x.Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\}dx=2\frac{1+p}{p}\, l(1+p)-$
$-\frac{1}{p}\, l(1+p^2)-2(1-Arctg p)$ (VIII, 630).

5) $\int_0^{\frac{\pi}{2}}\left\{Cos x.l(1+2p Cos x+p^2)-2\, Sin x.Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\}dx=l(1+p^2)+\frac{2}{p}Arctg p-2$ (VIII, 630).

6) $\int_0^{\pi}\left\{Sin x\, l.(1+2p Cos x+p^2)+2 Cos x.Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\}dx=\frac{2}{p}\, l\frac{1+p}{1-p}+$
$+2\, l(1-p^2)-4\; [p^2<1]$ (VIII, 630).

7) $\int_0^{\pi}\left\{Cos x.l(1+2p Cos x+p^2)-2\, Sin x.Arctg\left(\frac{p Sin x}{1+p Cos x}\right)\right\}dx=0\; [p^2<1]$ (VIII, 630).

F. Logarithmique;
Circulaire Directe;
Autre Fonction.

TABLE 475.

Lim. diverses.

1) $\int_0^1 li\left(\frac{1}{x}\right).Sin(q\, l x)\, dx=\frac{1}{1+q^2}\left(q\, l q-\frac{1}{2}\pi\right)$ V. T. 473, N. 4.

2) $\int_0^1 li\left(\frac{1}{x}\right).Cos(q\, l x)\, dx=\frac{-1}{1+q^2}\left(lq+\frac{1}{2}q\pi\right)$ V. T. 473, N. 6.

3) $\int_0^1 l\Gamma(x).Sin 2a\pi x\, dx=\frac{1}{2a\pi}(\mathrm{A}+l 2a\pi)$ (VIII, 458).

4) $\int_0^1 l\Gamma(x).Cos 2a\pi x\, dx=\frac{1}{4a}$ (VIII, 271).

5) $\int_0^1 l\Gamma(1-x).Sin 2a\pi x\, dx=\frac{-1}{2a\pi}(l 2a\pi+\mathrm{A})$ (VIII, 458).

6) $\int_0^1 l\Gamma(1-x).Cos 2a\pi x\, dx=\frac{1}{4a}$ (VIII, 271).

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7) $\int_0^\infty li\left(\frac{1}{x}\right).Sin(q\,lx)\,dx = -\frac{\pi}{1+q^2}$ V. T. 475, N. 1, 9.

8) $\int_0^\infty li\left(\frac{1}{x}\right).Cos(q\,lx)\,dx = -\frac{q\pi}{1+q^2}$ V. T. 475, N. 2, 10.

9) $\int_1^\infty li\left(\frac{1}{x}\right).Sin(q\,lx)\,dx = -\frac{1}{1+q^2}\left\{\frac{\pi}{2}+q\,lq\right\}$ V. T. 473, N. 3.

10) $\int_1^\infty li\left(\frac{1}{x}\right).Cos(q\,lx)\,dx = \frac{1}{1+q^2}\left(lq-\frac{1}{2}q\pi\right)$ V. T. 473, N. 5.

11) $\int_0^{\frac{\pi}{2}} l\left[Sin.Amp\left\{\frac{2x}{\pi}F'(p)\right\}\right].dx = \frac{-\pi}{4}\left\{lp+\frac{\pi}{2}\,\frac{F'\{\sqrt{1-p^2}\}}{F'(p)}\right\}$ (IV, 567).

12) $\int_0^{\frac{\pi}{2}} l\left[Cos.Amp\left\{\frac{2x}{\pi}F'(p)\right\}\right].dx = \frac{\pi}{4}\left\{l\,\frac{\sqrt{1-p^2}}{p}-\frac{\pi}{2}\,\frac{F'\{\sqrt{1-p^2}\}}{F'(p)}\right\}$ (IV, 567).

F. Circulaire Directe;
Circulaire Inverse; TABLE 476. Lim. α et β.
Autre Fonction.

1) $\int F\left\{p, Arctg\left(\frac{Tg^q\alpha.Tg^q\beta.Cot^{2q}x}{\sqrt[4]{1-p^2}}\right)\right\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$= \frac{1}{2\,Cos\alpha.Sin\beta}F'(p).F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

2) $\int F\left\{p, Arctg\left(\frac{Cot^q\alpha.Cot^q\beta.Tg^{2q}x}{\sqrt[4]{1-p^2}}\right)\right\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$= \frac{1}{2\,Cos\alpha.Sin\beta}F'(p).F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

3) $\int F\{\sqrt{1-Cot^2\alpha.Cot^2\beta}, Arctg(Tg\alpha.Tg\beta.Cotx)\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} = \frac{1}{2\,Cos\alpha.Sin\beta}$

$F'\{\sqrt{1-Cot^2\alpha\,Cot^2\beta}\}.F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}$ (VIII, 425).

4) $\int E\{\sqrt{1-Cot^2\alpha.Cot^2\beta}, Arctg(Tg\alpha.Tg\beta.Cotx)\}\frac{dx}{\sqrt{(Sin^2x-Sin^2\alpha)(Sin^2\beta-Sin^2x)}} =$

$\frac{1}{2\,Cos\alpha.Sin\beta}E'\{\sqrt{1-Cot^2\alpha.Cot^2\beta}\}.F'\{\sqrt{1-Tg^2\alpha.Cot^2\beta}\}+\frac{Sin\beta}{2\,Cos\alpha}(1-Cot^2\alpha.Cot^2\beta)$

$F'\{\sqrt{1-Sin^2 2\beta.Cosec^2 2\alpha}\}$ (VIII, 427).

PARTIE CINQUIÈME.

PARTIE CINQUIÈME.

F. Alg. rat. entière; Logarithmique; Circulaire Directe; Une autre fonction.	TABLE 477.	Lim. diverses.

1) $\int_0^1 li(x) . Sin\,(q\,lx) . x^{p-1}\,dx = \frac{1}{p^2+q^2}\left\{\frac{q}{2}\,l\{(1+p)^2+q^2\} - p Arctg\left(\frac{q}{1+p}\right)\right\}$ V. T. 473, N. 7.

2) $\int_0^1 li(x) . Cos\,(q\,lx) . x^{p-1}\,dx = \frac{-1}{p^2+q^2}\left\{q\,Arctg\left(\frac{q}{1+p}\right) + \frac{p}{2}\,l\{(1+p)^2+q^2\}\right\}$ V. T. 473, N. 8.

3) $\int_0^1 Sin(p\,Arccos\,x) . lx . x^{p-1}\,dx = \frac{\pi}{2^{p+2}}\left\{A + Z'(p) - \frac{1}{p} - 2\,l2\right\}$ V. T. 306, N. 12.

4) $\int_0^\infty e^{-qx}\,Sin\,rx\,.\,lx\,.\,x^{p-1}\,dx = \frac{\Gamma(p)}{\sqrt{q^2+r^2}^p}\left\{Arctg\frac{r}{q} . Cos\left(p\,Arctg\frac{r}{q}\right) - \frac{1}{2}\,l(q^2+r^2) . Sin\left(p\,Arctg\frac{r}{q}\right) + Sin\left(p\,Arctg\frac{r}{q}\right) . Z'(p)\right\}$ (IV, 568).

5) $\int_0^\infty e^{-qx}\,Cos\,rx\,.\,lx . x^{p-1}\,dx = \frac{\Gamma(p)}{\sqrt{q^2+r^2}^p}\left\{Cos\left(p\,Arctg\frac{r}{q}\right) . Z'(p) - \frac{1}{2}\,l(q^2+r^2) . Cos\left(p\,Arctg\frac{r}{q}\right) - Arctg\frac{r}{q} . Sin\left(p\,Arctg\frac{r}{q}\right)\right\}$ (IV, 568).

6) $\int_0^\infty e^{-qx}\,Cos\,rx\,.\,lx\,.\,(qx\,Tg\,rx - rx - p\,Tg\,rx)\,x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\,Sin\left(p\,Arctg\frac{r}{q}\right)$ V. T. 361, N. 9.

7) $\int_0^\infty e^{-qx}\,Cos\,rx\,.\,lx\,.\,(qx - rx\,Tg\,rx - p)\,x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\,Cos\left(p\,Arctg\frac{r}{q}\right)$ V. T. 361, N. 10.

8) $\int_0^\infty e^{-px}\,Sin\left(qx - Arctg\frac{q}{p}\right) . lx . dx = \frac{1}{\sqrt{p^2+q^2}}\,Arctg\frac{q}{p}$ V. T. 467, N. 1, 2.

F. Alg. rat. entière;
Logarithmique;
Circulaire Directe;
Une autre fonction.

TABLE 477, suite.

Lim. diverses.

9) $\int_0^\infty e^{-px}\, Cos\left(qx - Arctg\,\frac{p}{q}\right).lx.dx = \frac{-1}{\sqrt{p^2+q^2}}\left\{A + \frac{1}{2}\,l(p^2+q^2)\right\}$ V. T. 467, N. 1, 2.

10) $\int_0^\infty e^{-rx}\, Sin\left(qx - p\,Arctg\,\frac{q}{r}\right).lx.x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\,Arctg\,\frac{q}{r}$ V. T. 477, N. 4, 5.

11) $\int_0^\infty e^{-rx}\, Cos\left(qx - p\,Arctg\,\frac{q}{r}\right).lx.x^{p-1}\,dx = \frac{\Gamma(p)}{(q^2+r^2)^{\frac{1}{2}p}}\left\{Z'(p) - \frac{1}{2}\,l(q^2+r^2)\right\}$
V. T. 477, N. 4, 5.

12) $\int_0^{\frac{1}{q}} lx.Sin(Arccos\,qx).x^{p-1}\,dx = \frac{\pi}{2^{p+2}q^p}\left\{A + Z'(q) - \frac{1}{q} - 2\,l(2q)\right\}$ (IV, 569).

F. Alg. rat. entière;
Exponentielle;
Deux autres fonctions.

TABLE 478.

Lim. 0 et ∞.

1) $\int e^{-qrx}(1 - 2e^{-qx}\,Cos\,sx + e^{-2qx})^{\frac{1}{2}a}\,Sin\left\{srx + a\,Arctg\left(\frac{e^{-qx}\,Sin\,sx}{e^{-qx}\,Cos\,sx - 1}\right)\right\}.x^{p-1}\,dx =$

$= \frac{\Gamma(p)}{(s^2+r^2)^{\frac{1}{2}a}}\,Sin\left(p\,Arctg\,\frac{s}{q}\right).\Delta^a.r^{-p}$ (IV, 569).

2) $\int e^{-qrx}(1 - 2e^{-qx}\,Cos\,sx + e^{-2qx})^{\frac{1}{2}a}\,Cos\left\{srx + a\,Arctg\left(\frac{e^{-qx}\,Sin\,sx}{e^{-qx}\,Cos\,sx - 1}\right)\right\}.x^{p-1}\,dx =$

$= \frac{\Gamma(p)}{(s^2+r^2)^{\frac{1}{2}a}}\,Cos\left(p\,Arctg\,\frac{s}{q}\right).\Delta^a.r^{-p}$ (IV, 569).

3) $\int e^{-qx}\{lx + Z'(p)\}\,x^{p-1}\,dx = -\Gamma(p)\,\frac{lq}{q^p}$ (IV, 569).

4) $\int e^{-qx}(e^{-x}-1)^a\{lx + Z'(p)\}\,x^{p-1}\,dx = -\Gamma(p).\Delta^a.\frac{lq}{q^p}$ (IV, 569).

F. Alg. rat. fract. à dén. monôme;
Logarithmique;
Circulaire Directe;
Une autre fonction.

TABLE 479.

Lim. diverses.

1) $\int_0^1 li(x).Sin(q\,lx)\,\frac{dx}{x} = \frac{1}{2q}\,l(1+q^2)$ V. T. 473, N. 1.

2) $\int_0^1 li(x).Cos(q\,lx)\,\frac{dx}{x} = -\frac{1}{q}\,Arctg\,q$ V. T. 473, N. 2.

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F. Alg. rat. fract. à dén. monôme;
Logarithmique;
Circulaire Directe;
Une autre fonction.

TABLE 479, suite.

Lim. diverses.

3) $\int_0^1 li(x) . Sin(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left(q\,lq + \frac{1}{2}\pi\right)$ V. T. 473, N. 3.

4) $\int_0^1 li(x) . Cos(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left(lq - \frac{1}{2}q\pi\right)$ V. T. 473, N. 5.

5) $\int_0^\infty Arctg\,x . Sin(p\,lx) \frac{dx}{x} = -\frac{\pi}{4p}\frac{(e^{\frac{1}{2}p\pi}-1)^2}{e^{p\pi}+1}$ V. T. 402, N. 6.

6) $\int_0^\infty lx . e^{-px} Sin\,qx \frac{dx}{x} = -\left\{A + \frac{1}{2}l(p^2+q^2)\right\} . Arctg\frac{q}{p}$ Schlömilch, Schl. Z. 7, 262.

7) $\int_0^\infty l\frac{e^x + 2p\,Sin\,x + p^2 e^{-x}}{e^x - 2p\,Sin\,x + p^2 e^{-x}} \frac{dx}{x} = \pi\,Arctg p$ Boole, Mathem. I, 197.

8) $\int_0^\infty li(x) . Sin(q\,lx) \frac{dx}{x^2} = \frac{\pi}{1+q^2}$ V. T. 479, N. 3, 12.

9) $\int_0^\infty li(x) . Cos(q\,lx) \frac{dx}{x^2} = -\frac{q\pi}{1+q^2}$ V. T. 479, N. 4, 13.

10) $\int_0^\infty e^{-px}(e^{-x}-1)^a \frac{lx + Z'(q)}{x^{q+1}} dx = \frac{\pi}{\Gamma(q+1)\,Sin\,q\pi}\Delta^a . (p^q\,lp)\,[q<a]$ V. T. 478, N. 4.

11) $\int_0^\infty e^{-px}(e^{-x}-1)^a \frac{lx - Z'(q+1) - \pi\,Cot\{(q+1)\pi\}}{x^{q+1}} dx = -\frac{\pi}{\Gamma(q+1)} Cosec\{(q+1)\pi\} .$

$\Delta^a . (p^q\,lp)\,[q<a], = -\frac{\pi}{\Gamma(q+1)} Cosec\{(q+1)\pi\} . \Delta^a . (p^a\,lp)\,[q>a]$ (IV, 571).

12) $\int_0^\infty (lx)^2 . e^{-px}(p\,Sin\,qx - q\,Cos\,qx)\,dx = -\{2A + l(p^2+q^2)\}\,Arctg\frac{q}{p}$ V. T. 479, N. 6.

13) $\int_1^\infty li(x) . Sin(q\,lx) \frac{dx}{x^2} = \frac{1}{1+q^2}\left\{\frac{\pi}{2} - q\,lq\right\}$ V. T. 473, N. 4.

14) $\int_1^\infty li(x) . Cos(q\,lx) \frac{dx}{x^2} = \frac{-1}{1+q^2}\left\{lq + \frac{1}{2}q\pi\right\}$ V. T. 473, N. 6.

F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circulaire Directe à un facteur;
Une autre fonction.

TABLE 480.

Lim. 0 et ∞.

1) $\int e^{s\,Cos\,rx} Si(x) . Sin(s\,Sin\,rx) \frac{dx}{q^2+x^2} = \frac{\pi}{4q}\{Ei(q) - Ei(-q)\}(e^{se^{-qr}} - 1)$ (VIII, 649).

2) $\int e^{s\,Cos\,rx} Si(x) . Cos(s\,Sin\,rx) \frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\{Ei(-q) - Ei(q)\}e^{se^{-qr}}$ (VIII, 649).

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3) $\int e^{s\,Cos\,r\,x}\, Ci(x)\,.\,Sin(s\,Sin\,r\,x)\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\, Ei(-q).(e^{s\,e^{-q\,r}} - e^{s\,e^{q\,r}})$ (VIII, 649).

4) $\int e^{s\,Cos\,r\,x}\, Ci(x)\,.\,Cos(s\,Sin\,r\,x)\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\, Ei(-q).(e^{s\,e^{q\,r}} + e^{s\,e^{-q\,r}})$ (VIII, 649).

5) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\, Si(x).Sin\left\{(s\,r+s_1\,r_1+\ldots)x\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\left\{Ei(q)-Ei(-q)\right\}$
$\left\{e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots}-1\right\}$ (VIII, 650).

6) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\, Si(x)\,.\,Cos\left\{(s\,r+s_1\,r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\left\{Ei(-q)-Ei(q)\right\}$
$e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots}$ (VIII, 650).

7) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\, Ci(x)\,.\,Sin\left\{(s\,r+s_1\,r_1+\ldots)x\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\, Ei(-q)\,.$
$\left\{e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots} - e^{s\,e^{q\,r}+s_1\,e^{q\,r_1}+\ldots}\right\}$ (VIII, 650).

8) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\, Ci(x)\,.\,Cos\left\{(s\,r+s_1\,r_1+\ldots)x\right\}\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\, Ei(-q)\,.$
$\left\{e^{s\,e^{q\,r}+s_1\,e^{q\,r_1}+\ldots} + e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots}\right\}$ (VIII, 650).

9) $\int e^{s\,Cos\,r\,x}\, Si(x)\,.\,Sin(s\,Sin\,r\,x+r\,x)\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\left\{Ei(q)-Ei(-q)\right\}e^{s\,e^{-q\,r}-q\,r}$ (VIII, 650).

10) $\int e^{s\,Cos\,r\,x}\, Si(x)\,.\,Cos(s\,Sin\,r\,x+r\,x)\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\left\{Ei(-q)-Ei(q)\right\}e^{s\,e^{-q\,r}-q\,r}$ (VIII, 650).

11) $\int e^{s\,Cos\,r\,x}\, Ci(x)\,.\,Sin(s\,Sin\,r\,x+r\,x)\,\frac{x\,dx}{q^2+x^2} = \frac{\pi}{4}\, Ei(-q)\,.\left\{e^{s\,e^{-q\,r}-q\,r} - e^{s\,e^{q\,r}+q\,r}\right\}$ (VIII, 650).

12) $\int e^{s\,Cos\,r\,x}\, Ci(x)\,.Cos(s\,Sin\,r\,x+r\,x)\,\frac{dx}{q^2+x^2} = \frac{\pi}{4q}\, Ei(-q)\,.\left\{e^{s\,e^{q\,r}+q\,r} + e^{s\,e^{-q\,r}-q\,r}\right\}$ (VIII, 650).

13) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots} Si(x)\,.\,Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\,\frac{dx}{q^2+x^2} =$
$= \frac{\pi}{4q}\left\{Ei(q)-Ei(-q)\right\}(e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots-p\,q} - e^{s+s_1+\ldots})$ (H, 69).

14) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\ldots}\, Si(x)\,.\,Cos\,(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\,\frac{x\,dx}{q^2+x^2} =$
$= \frac{\pi}{4}\left\{Ei(-q)-Ei(q)\right\}e^{s\,e^{-q\,r}+s_1\,e^{-q\,r_1}+\ldots-p\,q}$ (H, 69).

F. Alg. rat. fract. à dén. bin. q^2+x^2; Exponentielle; Circulaire Directe à un facteur; Une autre fonction.	TABLE 480, suite.	Lim. 0 et ∞.

15) $$\int e^{s\, Cos\, r\, x + s_1\, Cos\, r_1\, x + \dots}\, Ci(x) \,.\, Sin\,(s\, Sin\, r\, x + s_1\, Sin\, r_1\, x + \dots + p\, x)\, \frac{x\, dx}{q^2+x^2} =$$
$$= \frac{\pi}{4}\, Ei(-q) \,.\, \left(e^{s\, e^{-q\, r} + s_1\, e^{-q\, r_1} + \dots - q\, p} - e^{s\, e^{q\, r} + s_1\, e^{q\, r_1} + \dots + q\, p}\right) \quad \text{(H, 69).}$$

16) $$\int e^{s\, Cos\, r\, x + s_1\, Cos\, r_1\, x + \dots}\, Ci(x) \,.\, Cos\,(s\, Sin\, r\, x + s_1\, Sin\, r_1 x + \dots p\, x)\, \frac{dx}{q^2+x^2} =$$
$$= \frac{\pi}{4q}\, Ei(-q) \,.\, \left(e^{s\, e^{q\, r} + s_1\, e^{q\, r_1} + \dots + q\, p} + e^{s\, e^{-q\, r} + s_1\, e^{-q\, r_1} + \dots - q\, p}\right) \quad \text{(H, 69).}$$

F. Alg. rat. fract. à dén. bin. q^2+x^2; Exponentielle; Circ. Directe à deux facteurs; Une autre fonction.	TABLE 481.	Lim. 0 et ∞.

1) $$\int e^{t\, Cos\, p\, x}\, Si(x) \,.\, Cos^s\, r\, x \,.\, Sin\,(s\, r\, x + t\, Sin\, p\, x)\, \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+2}\, q} \left\{Ei(q) - Ei(-q)\right\}$$
$$\left\{(1+e^{-2\, q\, r})^s\, e^{t\, e^{-q\, p}} - 1\right\} \quad \text{(VIII, 651).}$$

2) $$\int e^{t\, Cos\, p\, x}\, Si(x) \,.\, Cos^s\, r\, x \,.\, Cos\,(s\, r\, x + t\, Sin\, p\, x)\, \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2^{s+2}} \left\{Ei(-q) - Ei(q)\right\}$$
$$(1+e^{-2\, q\, r})^s\, e^{t\, e^{-q\, p}} \quad \text{(VIII, 651).}$$

3) $$\int e^{t\, Cos\, p\, x}\, Ci(x) \,.\, Cos^s\, r\, x \,.\, Sin\,(s\, r\, x + t\, Sin\, p\, x)\, \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2^{s+2}}\, Ei(-q) \,.\, \left\{e^{t\, e^{-q\, p} - s\, q\, r} - e^{t\, e^{q\, p} + s\, q\, r}\right\}$$
$$(e^{q\, r} + e^{-q\, r})^s \quad \text{(VIII, 651).}$$

4) $$\int e^{t\, Cos\, p\, x}\, Ci(x) \,.\, Cos^s\, r\, x \,.\, Cos\,(s\, r\, x + t\, Sin\, p\, x)\, \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+2}\, q}\, Ei(--q) \,.\, \left(e^{t\, e^{q\, p} + s\, q\, r} + e^{t\, e^{-q\, p} - s\, q\, r}\right)$$
$$(e^{q\, r} + e^{-q\, r})^s \quad \text{(VIII, 651).}$$

5) $$\int e^{t\, Cos\, p\, x}\, Si(x) \,.\, Cos^s\, r\, x \,.\, Sin\, \left\{(s\, r + p)\, x + t\, Sin\, p\, x\right\}\, \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+2}\, q} \left\{Ei(q) - Ei(-q)\right\}$$
$$(1+e^{-2\, q\, r})^s\, e^{t\, e^{-q\, p} - q\, p} \quad \text{(VIII, 652).}$$

6) $$\int e^{t\, Cos\, p\, x}\, Si(x) \,.\, Cos^s\, r\, x \,.\, Cos\, \left\{(s\, r + p)\, x + t\, Sin\, p\, x\right\}\, \frac{x\, dx}{q^2+x^2} = \frac{\pi}{2^{s+2}} \left\{Ei(-q) - Ei(q)\right\}$$
$$(1+e^{-2\, q\, r})^s\, e^{t\, e^{q\, p} - q\, p} \quad \text{(VIII, 652).}$$

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7) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Cos^s\,r\,x\,.\,Sin\left\{(s\,r+p)\,x+t\,Sin\,p\,x\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.$
$(e^{t\,e^{-qp}-s\,q\,r-q\,p}-e^{t\,e^{qp}+s\,q\,r+q\,p})\,(e^{q\,r}+e^{-q\,r})^s$ (VIII, 652).

8) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Cos^s\,r\,x\,.\,Cos\left\{(s\,r+p)\,x+t\,Sin\,p\,x\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}\,q}\,Ei(-q)\,.$
$(e^{t\,e^{qp}+s\,q\,r+q\,p}+e^{t\,e^{-qp}-s\,q\,r-q\,p})\,(e^{q\,r}+e^{-q\,r})^s$ (VIII, 652).

9) $\int e^{t\,Cos\,p\,x}\, Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}\,s\,\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}\,q}\left\{Ei(-q)-Ei(q)\right\}$
$\left\{(1-e^{-2\,q\,r})^s\,e^{t\,e^{-qp}}-1\right\}$ (VIII, 654).

10) $\int e^{t\,Cos\,p\,x}\, Si(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}\,s\,\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\left\{Ei(-q)-Ei(q)\right\}$
$(1-e^{-2\,q\,r})^s\,e^{t\,e^{-qp}}$ (VIII, 654).

11) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}\,s\,\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.$
$\left\{(-1)^s\,e^{t\,e^{qp}+s\,q\,r}-e^{t\,e^{-qp}-s\,q\,r}\right\}(e^{q\,r}-e^{-q\,r})^s$ (VIII, 654).

12) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}\,s\,\pi-s\,r\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}\,q}\,Ei(-q)\,.$
$\left\{(-1)^s\,e^{t\,e^{qp}+s\,q\,r}+e^{t\,e^{-qp}-s\,q\,r}\right\}(e^{q\,r}-e^{-q\,r})^s$ (VIII, 654).

13) $\int e^{t\,Cos\,p\,x}\, Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}\,s\,\pi-(s\,r+p)\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}\,q}\left\{Ei(-q)-Ei(q)\right\}$
$(1-e^{-2\,q\,r})^s\,e^{t\,e^{-qp}-q\,p}$ (VIII, 655).

14) $\int e^{t\,Cos\,p\,x}\, Si(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}\,s\,\pi-(s\,r+p)\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\left\{Ei(-q)-Ei(q)\right\}$
$(1-e^{-2\,q\,r})^s\,e^{t\,e^{-qp}-q\,p}$ (VIII, 655).

15) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Sin^s\,r\,x\,.\,Sin\left(\frac{1}{2}\,s\,\pi-(s\,r+p)\,x-t\,Sin\,p\,x\right)\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{s+2}}\,Ei(-q)\,.$
$\left\{(-1)^s\,e^{t\,e^{qp}+(s\,r+p)\,q}-e^{t\,e^{-qp}-(s\,r+p)\,q}\right\}(e^{q\,r}-e^{-q\,r})^s$ (VIII, 655).

16) $\int e^{t\,Cos\,p\,x}\, Ci(x)\,.\,Sin^s\,r\,x\,.\,Cos\left(\frac{1}{2}\,s\,\pi-(s\,r+p)\,x-t\,Sin\,p\,x\right)\frac{dx}{q^2+x^2}=\frac{\pi}{2^{s+2}\,q}\,Ei(-q)\,.$
$\left\{(-1)^s\,e^{t\,e^{qp}+(s\,r+p)\,q}+e^{t\,e^{-qp}-(s\,r+p)\,q}\right\}(e^{q\,r}-e^{-q\,r})^s$ (VIII, 655).

1) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Si(x)\,.\,Cos^s rx.Cos^{s_1} r_1 x\dots Sin\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$$
$$\left.+t_1\,Sin\,p_1x+\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}q}\left\{Ei(q)-Ei(-q)\right\}\left\{(1+e^{-2qr})^s\right.$$
$$\left.(1+e^{-2qr_1})^{s_1}\dots e^{t\,e^{-qp}+t_1\,e^{-qp_1}+\dots}-1\right\}\ \text{(VIII, 653).}$$

2) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Si(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1 x\dots Cos\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$$
$$\left.+t_1\,Sin\,p_1x+\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}}\left\{Ei(-q)-Ei(q)\right\}(1+e^{-2qr})^s$$
$$(1+e^{-2qr_1})^{s_1}\dots e^{t\,e^{-qp}+t_1\,e^{-qp_1}+\dots}\ \text{(VIII, 652).}$$

3) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Ci(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1 x\dots Sin\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$$
$$\left.+t_1\,Sin\,p_1x+\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}}Ei(-q)\,.\,(e^{qr}+e^{-qr})^s\,(e^{qr_1}+e^{-qr_1})^{s_1}\dots$$
$$\left\{e^{t\,e^{-qp}+t_1\,e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}-e^{t\,e^{qp}+t_1\,e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}\right\}\ \text{(VIII, 653).}$$

4) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Ci(x)\,.\,Cos^s rx\,.\,Cos^{s_1} r_1 x\dots Cos\left\{(sr+s_1r_1+\dots)x+t\,Sin\,px+\right.$$
$$\left.+t_1\,Sin\,p_1x+\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}q}Ei(-q)\,.\,(e^{qr}+e^{-qr})^s\,(e^{qr_1}+e^{-qr_1})^{s_1}\dots$$
$$\left\{e^{t\,e^{qp}+t_1\,e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}+e^{t\,e^{-qp}+t_1\,e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}\right\}\ \text{(VIII, 653).}$$

5) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Si(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1 x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$$
$$\left.-t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}q}\left\{Ei(-q)-Ei(q)\right\}\left\{(1-e^{-2qr})^s\right.$$
$$\left.(1-e^{-2qr_1})^{s_1}\dots e^{t\,e^{-qp}+t_1\,e^{-qp_1}+\dots}-1\right\}\ \text{(VIII, 656).}$$

6) $$\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots} Si(x)\,.\,Sin^s rx\,.\,Sin^{s_1} r_1 x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$$
$$\left.-t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}}\left\{Ei(-q)-Ei(q)\right\}(1-e^{-2qr})^s$$
$$(1-e^{-2qr_1})^{s_1}\dots e^{t\,e^{-qp}+t_1\,e^{-q_1p}+\dots}\ \text{(VIII, 656).}$$

7) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Ci(x).Sin^s rx.Sin^{s_1} r_1x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$$
$$\left.-t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}}Ei(-q).(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\dots$$
$$\left\{(-1)^{s+s_1+\dots}e^{te^{qp}+t_1e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}-e^{te^{-qp}+t_1e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}\right\}$$
(VIII, 656).

8) $$\int e^{t\,Cos\,px+t_1\,Cos\,p_1x+\dots} Ci(x).Sin^s rx.Sin^{s_1} r_1x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$$
$$\left.-t\,Sin\,px-t_1\,Sin\,p_1x-\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+s_1+\dots}q}Ei(-q).(e^{qr}-e^{-qr})^s(e^{qr_1}-e^{-qr_1})^{s_1}\dots$$
$$\left\{(-1)^{s+s_1+\dots}e^{te^{qp}+t_1e^{qp_1}+\dots+(sr+s_1r_1+\dots)q}+e^{te^{-qp}+t_1e^{-qp_1}+\dots-(sr+s_1r_1+\dots)q}\right\}$$
(VIII, 656).

9) $$\int e^{t\,Cos\,px+\dots} Si(x).Cos^s rx\dots Sin^n ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$$
$$\left.-t\,Sin\,px-\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+\dots+n+\dots}q}\left\{Ei(-q)-Ei(q)\right\}\left\{(1+e^{-2qr})^s\dots\right.$$
$$\left.(1-e^{-2qu})^n\dots e^{te^{-qp}+\dots}-1\right\}$$ (VIII, 657).

10) $$\int e^{t\,Cos\,px+\dots} Si(x).Cos^s rx\dots Sin^n ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$$
$$\left.-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+\dots+n+\dots}}\left\{Ei(-q)-Ei(q)\right\}(1+e^{-2qr})^s\dots$$
$$(1-e^{-2qu})^n\dots e^{te^{-qp}+\dots}$$ (VIII, 657).

11) $$\int e^{t\,Cos\,px+\dots} Ci(x).Cos^s rx\dots Sin^n ux\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$$
$$\left.-t\,Sin\,px-\dots\right\}\frac{x\,dx}{q^2+x^2}=\frac{\pi}{2^{2+s+\dots+n+\dots}}Ei(-q).(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{-qu})^n\dots$$
$$\left\{(-1)^{n+\dots}e^{te^{qp}+\dots+(sr+\dots+nu+\dots)q}-e^{te^{-qp}+\dots-(sr+\dots+nu+\dots)q}\right\}$$ (VIII, 657).

12) $$\int e^{t\,Cos\,px+\dots} Ci(x).Cos^s rx\dots Sin^n ux\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$$
$$\left.-t\,Sin\,px-\dots\right\}\frac{dx}{q^2+x^2}=\frac{\pi}{2^{2+s+\dots+n+\dots}q}Ei(-q).(e^{qr}+e^{-qr})^s\dots(e^{qu}-e^{-qu})^n\dots$$
$$\left\{(-1)^{n+\dots}e^{te^{qp}+\dots+(sr+\dots+nu+\dots)q}+e^{te^{-qp}+\dots-(sr+\dots+nu+\dots)q}\right\}$$ (VIII, 657).

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F. Alg. rat. fract. à dén. bin. q^2+x^2;
Exponentielle;
Circ. Directe à plus. facteurs;
Une autre fonction.

TABLE 482, suite.

Lim. 0 et ∞.

13) $\int e^{t\,Cos p x+\ldots} Si(x).\,Cos^s r x \ldots Sin^n u x \ldots Sin\left\{(n+\ldots)\frac{1}{2}\pi - wx - t\,Sin p x - \ldots\right\}\frac{dx}{q^2+x^2} =$

$$= \frac{\pi}{2^{2+s+\ldots+n+\ldots}q}\left\{Ei(-q)-Ei(q)\right\}(e^{qr}+e^{-qr})^s\ldots(e^{qu}-e^{-qu})^n\ldots e^{t e^{-qp}+\ldots-qw}$$

(VIII, 659).

14) $\int e^{t\,Cos p x+\ldots} Si(x).\,Cos^s r x \ldots Sin^n u x \ldots Cos\left\{(n+\ldots)\frac{1}{2}\pi - wx - t\,Sin p x - \ldots\right\}\frac{x\,dx}{q^2+x^2} =$

$$= \frac{\pi}{2^{2+s+\ldots+n+\ldots}}\left\{Ei(-q)-Ei(q)\right\}(e^{qr}+e^{-qr})^s\ldots(e^{qu}-e^{-qu})^n\ldots e^{t e^{-qp}+\ldots-qw}$$

(VIII, 658).

15) $\int e^{t\,Cos p x+\ldots} Ci(x).\,Cos^s r x \ldots Sin^n u x \ldots Sin\left\{(n+\ldots)\frac{1}{2}\pi - wx - t\,Sin p x - \ldots\right\}\frac{x\,dx}{q^2+x^2} =$

$$= \frac{\pi}{2^{2+s+\ldots+n+\ldots}} Ei(-q).\left\{(-1)^{n+\ldots}e^{t e^{qp}+\ldots+qw} - e^{t e^{-qp}+\ldots-qw}\right\}(e^{qr}+e^{-qr})^s\ldots(e^{qu}-e^{-qu})^n$$

(VIII, 659).

16) $\int e^{t\,Cos p x+\ldots} Ci(x).\,Cos^s r x \ldots Sin^n u x \ldots Cos\left\{(n+\ldots)\frac{1}{2}\pi - wx - t\,Sin p x - \ldots\right\}\frac{dx}{q^2+x^2} =$

$$= \frac{\pi}{2^{2+s+\ldots+n+\ldots}q} Ei(-q).\left\{(-1)^{n+\ldots}e^{t e^{qp}+\ldots+qw} + e^{t e^{-qp}+\ldots-qw}\right\}(e^{qr}+e^{-qr})^s\ldots(e^{qu}-e^{qu})^n\ldots$$

(VIII, 659).

Dans 13) à 16) on a $w > sr+\ldots+nu+\ldots$

F. Alg. rat. fract. à dén. bin. q^2-x^2;
Exponentielle;
Circ. Dir. à un ou deux fact.;
Une autre fonction.

TABLE 483.

Lim. 0 et ∞.

1) $\int e^{s\,Cos r x} Si(x).\,Sin(s\,Sin r x)\frac{dx}{q^2-x^2} = \frac{\pi}{2q} Si(q).\left\{1 - e^{s\,Cos q r} Cos(s\,Sin q r)\right\}$ (VIII, 650).

2) $\int e^{s\,Cos r x} Si(x).\,Cos(s\,Sin r x)\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\left\{-Ci(q) + Si(q).\,e^{s\,Cos q r} Sin(s\,Sin q r)\right\}$ (VIII, 649).

3) $\int e^{s\,Cos r x} Si(x).\,Sin(s\,Sin r x + r x)\frac{dx}{q^2-x^2} = \frac{-\pi}{2q} Si(q).e^{s\,Cos q r} Cos(s\,Sin q r + q r)$ (VIII, 650).

4) $\int e^{s\,Cos r x} Si(x).\,Cos(s\,Sin r x + r x)\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Si(q).\,e^{s\,Cos q r} Sin(s\,Sin q r + q r)$ (VIII, 650).

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5) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Si(x).Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).$
$\{1-e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Cos(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\}$ (VIII, 651).

6) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Si(x).Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{-Ci(q)+Si(q).$
$e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Sin(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots)\}$ (VIII, 651).

7) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Si(x).Sin(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{dx}{q^2-x^2}=$
$=-\frac{\pi}{2q}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Si(q).Cos(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+q\,p)$ (H, 116).

8) $\int e^{s\,Cos\,r\,x+s_1\,Cos\,r_1\,x+\cdots} Si(x).Cos(s\,Sin\,r\,x+s_1\,Sin\,r_1\,x+\ldots+p\,x)\frac{x\,dx}{q^2-x^2}=$
$=\frac{\pi}{2}e^{s\,Cos\,q\,r+s_1\,Cos\,q\,r_1+\cdots}Si(q).Sin(s\,Sin\,q\,r+s_1\,Sin\,q\,r_1+\ldots+q\,p)$ (H, 116).

9) $\int e^{t\,Cos\,p\,x}Si(x).Cos^s\,r\,x.Sin(s\,r\,x+t\,Sin\,p\,x)\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\{2^{-s}-e^{t\,Cos\,q\,p}Cos^s\,q\,r.$
$Cos(t\,Sin\,q\,p+s\,q\,r)\}$ (VIII, 651).

10) $\int e^{t\,Cos\,p\,x}Si(x).Cos^s\,r\,x.Cos(s\,r\,x+t\,Sin\,p\,x)\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\{-2^{-s}Ci(q)+Si(q).e^{t\,Cos\,q\,p}$
$Cos^s\,q\,r.Sin(t\,Sin\,q\,p+s\,q\,r)\}$ (VIII, 651).

11) $\int e^{t\,Cos\,p\,x}Si(x).Cos^s\,r\,x.Sin\{(s\,r+p)\,x+t\,Sin\,p\,x\}\frac{dx}{q^2-x^2}=-\frac{\pi}{2q}Si(q).e^{t\,Cos\,q\,p}Cos^s\,q\,r.$
$Cos\{t\,Sin\,q\,p+(s\,r+p)\,q\}$ (VIII, 652).

12) $\int e^{t\,Cos\,p\,x}Si(x).Cos^s\,r\,x.Cos\{(s\,r+p)\,x+t\,Sin\,p\,x\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}Si(q).e^{t\,Cos\,q\,p}Cos^s\,q\,r.$
$Sin\{t\,Sin\,q\,p+(s\,r+p)\,q\}$ (VIII, 652).

13) $\int e^{t\,Cos\,p\,x}Si(x).Sin^s\,r\,x.Sin\left\{\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).$
$\left\{-2^{-s}+e^{t\,Cos\,q\,p}Sin^s\,q\,r.Cos\left(\frac{1}{2}s\pi-s\,q\,r-t\,Sin\,q\,p\right)\right\}$ (VIII, 655).

14) $\int e^{t\,Cos\,p\,x}Si(x).Sin^s\,r\,x.Cos\left\{\frac{1}{2}s\pi-s\,r\,x-t\,Sin\,p\,x\right\}\frac{x\,dx}{q^2-x^2}=\frac{-\pi}{2}\left\{2^{-s}Ci(q)+\right.$
$\left.+Si(q).e^{t\,Cos\,q\,p}Sin^s\,q\,r.Sin\left(\frac{1}{2}s\pi-s\,q\,r-t\,Sin\,q\,p\right)\right\}$ (VIII, 654).

15) $\int e^{t\,Cos\,p\,x}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Sin\left\{\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\,e^{t\,Cos\,q\,p}\,Sin^s\,q\,r.$
$Cos\left\{\frac{1}{2}s\pi-(sr+p)q-t\,Sin\,q\,p\right\}$ (VIII, 655).

16) $\int e^{t\,Cos\,p\,x}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Cos\left\{\frac{1}{2}s\pi-(sr+p)x-t\,Sin\,p\,x\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\,Si(q)\,.\,e^{t\,Cos\,q\,p}\,Sin^s\,q\,r.$
$Sin\left\{\frac{1}{2}s\pi-(sr+p)q-t\,Sin\,q\,p\right\}$ (VIII, 655).

F. Alg. rat. fract. à dén. bin. q^2-x^2;
Exponentielle;
Circ. Directe à plus. facteurs;
Une autre fonction.

TABLE 484.

Lim. 0 et ∞.

1) $\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots}\,Si(x)\,.\,Cos^s\,r\,x\,.\,Cos^{s_1}\,r_1\,x\dots Sin\{(sr+s_1r_1+\dots)x+t\,Sin\,p\,x+$
$+t_1\,Sin\,p_1\,x+\dots\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\,[2^{-s-s_1-\dots}-e^{t\,Cos\,q\,p+t_1\,Cos\,q\,p_1+\dots}\,Cos^s\,q\,r\,.$
$Cos^{s_1}\,q\,r_1\dots Cos\{(sr+s_1r_1+\dots)q+t\,Sin\,q\,p+t_1\,Sin\,q\,p_1+\dots\}]$ (VIII, 654).

2) $\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots}\,Si(x)\,.\,Cos^s\,r\,x\,.\,Cos^{s_1}\,r_1\,x\dots Cos\{(sr+s_1r_1+\dots)x+t\,Sin\,p\,x+$
$+t_1\,Sin\,p_1\,x+\dots\}\frac{x\,dx}{q^2-x^2}=\frac{\pi}{2}\,[-2^{-s-s_1-\dots}\,Ci(q)+Si(q)\,.\,e^{t\,Cos\,q\,p+t_1\,Cos\,q\,p_1+\dots}$
$Cos^s\,q\,r\,.\,Cos^{s_1}\,q\,r_1\dots Sin\{(sr+s_1r_1+\dots)q+t\,Sin\,q\,p+t_1\,Sin\,q\,p_1+\dots\}]$ (VIII, 654).

3) $\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Sin^{s_1}\,r_1\,x\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$
$\left.-t\,Sin\,p\,x-t_1\,Sin\,p_1\,x-\dots\right\}\frac{dx}{q^2-x^2}=\frac{\pi}{2q}\,Si(q)\,.\left[-2^{-s-s_1-\dots}+e^{t\,Cos\,q\,p+t_1\,Cos\,q\,p_1+\dots}\,Si(q).\right.$
$\left.Sin^s\,q\,r\,.\,Sin^{s_1}\,q\,r_1\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q-t\,Sin\,q\,p-t_1\,Sin\,q\,p_1-\dots\right\}\right]$
(VIII, 657).

4) $\int e^{t\,Cos\,p\,x+t_1\,Cos\,p_1\,x+\dots}\,Si(x)\,.\,Sin^s\,r\,x\,.\,Sin^s\,r_1\,x\dots Cos\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)x-\right.$
$\left.-t\,Sin\,p\,x-t_1\,Sin\,p_1\,x-\dots\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\left[-2^{-s-s_1-\dots}\,Ci(q)+e^{t\,Cos\,q\,p+t_1\,Cos\,q\,p_1+\dots}\,Si(q).\right.$
$\left.Sin^s\,q\,r\,.\,Sin^{s_1}\,q\,r_1\dots Sin\left\{(s+s_1+\dots)\frac{1}{2}\pi-(sr+s_1r_1+\dots)q-t\,Sin\,q\,p-t_1\,Sin\,q\,p_1-\dots\right\}\right]$
(VIII, 657).

5) $\int e^{t\,Cos\,p\,x+\dots} Si(x) . Cos^s\, r\,x \dots Sin^n\, u\,x \dots Sin \left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-t\,Sin\,p\,x-\dots\right\}$
$\frac{dx}{q^2-x^2}=\frac{\pi}{2q}Si(q).\Big[e^{t\,Cos\,q\,p+\dots} Cos^s\, qr\dots Sin^n\, qu\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)q-\right.$
$\left.-t\,Sin\,qp-\dots\right\}-2^{-s-\dots-n-\dots}\Big]$ (VIII, 658).

6) $\int e^{t\,Cos\,p\,x+\dots} Si(x) . Cos^s\, r\,x \dots Sin^n\, u\,x \dots Cos \left\{(n+\dots)\frac{1}{2}\pi-(sr+\dots+nu+\dots)x-\right.$
$\left.-t\,Sin\,p\,x-\dots\right\}\frac{x\,dx}{q^2-x^2}=-\frac{\pi}{2}\left\{Si(q).e^{t\,Cos\,q\,p+\dots} Cos^s\, qr\dots Sin^n\, q\,u\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-\right.\right.$
$\left.\left.-(sr+\dots+nu+\dots)q-t\,Sin\,qp-\dots\right\}+2^{-s-\dots-n-\dots}Ci(q)\right\}$ (VIII, 658).

7) $\int e^{t\,Cos\,p\,x+\dots} Si(x) . Cos^s\, r\,x \dots Sin^n\, u\,x \dots Sin \left\{(n+\dots)\frac{1}{2}\pi-w\,x-t\,Sin\,p\,x-\dots\right\}\frac{dx}{q^2-x^2}=$
$=\frac{\pi}{2q}Si(q).e^{t\,Cos\,q\,p+\dots} Cos^s\, qr\dots Sin^n\, qu\dots Cos\left\{(n+\dots)\frac{1}{2}\pi-wq-t\,Sin\,qp-\dots\right\}$
(VIII, 659).

8) $\int e^{t\,Cos\,p\,x+\dots} Si(x) . Cos^s\, r\,x \dots Sin^n\, u\,x \dots Cos \left\{(n+\dots)\frac{1}{2}\pi-w\,x-t\,Sin\,p\,x-\dots\right\}\frac{x\,dx}{q^2-x^2}=$
$=-\frac{\pi}{2}Si(q).e^{t\,Cos\,q\,p+\dots} Cos^s\, qr\dots Sin^n\, qu\dots Sin\left\{(n+\dots)\frac{1}{2}\pi-wq-t\,Sin\,qp-\dots\right\}$
(VIII, 659).

Dans 7) et 8) on a $w>sr+\dots+nu+\dots$

F. Alg. rat. fract. à dén. bin.;
Logarithmique;
Circulaire Directe;
Une autre fonction.

TABLE 485.

Lim. diverses.

1) $\int_0^\infty \frac{Cos\,p\,x\,.\,l(1+x^2)-2\,Sin\,p\,x\,.\,Arctg\,x}{\left\{\frac{1}{2}l(1+x^2)\right\}^2+(Arctg\,x)^2}\frac{dx}{x^2+q^2}=\frac{\pi}{q}\left\{\frac{e^{-pq}}{l(1+q)}-\frac{1}{q}\right\}$ (IV, 570).

2) $\int_0^\infty \frac{Cos\left(\frac{1}{2}r\pi-px\right).l(1+x^2)+2\,Sin\left(\frac{1}{2}r\pi-px\right).Arctg\,x}{\left\{\frac{1}{2}l(1+x^2)\right\}^2+(Arctg\,x)^2}\frac{x^r\,dx}{x^2+q^2}=\frac{\pi q^{r-1}}{l(1+q)}e^{-pq}$
(IV, 570).

3) $\int_0^\infty \frac{Sin\, rx.\, l(1+p^2x^2)+2\, Cos\, rx.\, Arctg\, px}{\left\{\frac{1}{2}\, l(1+p^2x^2)\right\}^2+\left\{Arctg\, px\right\}^2}\, \frac{x\,dx}{q^2+x^2}=\frac{\pi e^{-qr}}{l(1+pq)}$ (IV, 571*).

4) $\int_0^\infty l(Sin^2 rx).\, Si(x)\, \frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{Ei(-q)-Ei(q)\right\} l\, \frac{1-e^{-2qr}}{2}$ (VIII, 646).

5) $\int_0^\infty l(Sin^2 rx).\, Ci(x)\, \frac{dx}{q^2+x^2}=\frac{\pi}{q}\, Ei(-q).\, l\, \frac{e^{qr}-e^{-qr}}{2}$ (VIII, 646).

6) $\int_0^\infty l(Cos^2 rx).\, Si(x)\, \frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{Ei(-q)-Ei(q)\right\} l\, \frac{1+e^{-2qr}}{2}$ (VIII, 645).

7) $\int_0^\infty l(Cos^2 rx).\, Ci(x)\, \frac{dx}{q^2+x^2}=\frac{\pi}{q}\, Ei(-q).\, l\, \frac{e^{qr}+e^{-qr}}{2}$ (VIII, 645).

8) $\int_0^\infty l(Tg^2 rx).\, Si(x)\, \frac{x\,dx}{q^2+x^2}=\frac{\pi}{2}\left\{Ei(-q)-Ei(q)\right\} l\, \frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (VIII, 647).

9) $\int_0^\infty l(Tg^2 rx).\, Ci(x)\, \frac{dx}{q^2+x^2}=\frac{\pi}{q}\, Ei(-q).\, l\, \frac{e^{qr}-e^{-qr}}{e^{qr}+e^{-qr}}$ (VIII, 645).

10) $\int_0^\infty l(Sin^2 rx).\, Si(x)\, \frac{x\,dx}{q^2-x^2}=\pi\left\{Ci(q).\, l2+\left(qr-\frac{1}{2}\pi\right) Si(q)\right\}$ (VIII, 647).

11) $\int_0^\infty l(Cos^2 rx).\, Si(x)\, \frac{x\,dx}{q^2-x^2}=\pi\left\{Ci(q).\, l2+qr\, Si(q)\right\}$ (VIII, 645).

12) $\int_0^\infty l(Tg^2 rx).\, Si(x)\, \frac{x\,dx}{q^2-x^2}=-\frac{1}{2}\pi^2\, Si(q)$ (VIII, 647).

13) $\int_{-\infty}^\infty Cos(p\, Arctg\, qx)\, \frac{l(1+q^2x^2)}{(1+q^2x^2)^{\frac{1}{2}p}}\, \frac{dx}{1+x^2}=\frac{2\pi}{(1+q)^p}\, l(1+q)$ (IV, 571).

14) $\int_{-\infty}^\infty (e^{p\, Arctg\, qx}+e^{-p\, Arctg\, qx})\, Sin\left\{\frac{p}{2}\, l(1+q^2x^2)\right\} \frac{dx}{1+x^2}=2q\, Sin\left\{p\, l(1+q)\right\}$ (IV, 571).

15) $\int_{-\infty}^\infty (e^{p\, Arctg\, qx}-e^{-p\, Arctg\, qx})\, Cos\left\{\frac{p}{2}\, l(1+q^2x^2)\right\} \frac{dx}{1+x^2}=2\pi\, Cos\left\{p\, l(1+q)\right\}$ (IV, 571).

1) $\int_0^1 \left\{e^{q\sqrt{(1-x^2)}} - e^{-q\sqrt{(1-x^2)}}\right\} Sin\,q\,x.Sin(2a\,Arccos\,x)\,\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2}\,\frac{(-1)^{a-1}\,q^{2a}}{1^{2a/1}}$ V. T. 271, N. 4.

2) $\int_0^1 \left\{e^{q\sqrt{(1-x^2)}} + e^{-q\sqrt{(1-x^2)}}\right\} Sinqx.Cos\left\{(2a-1)\,Arccos\,x\right\}\,\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2}\,\frac{(-1)^{a-1}\,q^{2a-1}}{1^{2a-1/1}}$
V. T. 271, N. 5.

3) $\int_0^1 \left\{e^{q\sqrt{(1-x^2)}} - e^{-q\sqrt{(1-x^2)}}\right\} Cos\,q\,x.Sin\left\{(2a-1)\,Arccos\,x\right\}\,\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2}\,\frac{(-1)^{a-1}\,q^{2a-1}}{1^{2a-1/1}}$
V. T. 271, N. 6.

4) $\int_0^1 \left\{e^{q\sqrt{(1-x^2)}} + e^{-q\sqrt{(1-x^2)}}\right\} Cosqx.Cos(2a\,Arccos\,x)\,\frac{dx}{\sqrt{1-x^2}} = \frac{\pi}{2}\,\frac{(-1)^{a}\,q^{2a}}{1^{2a/1}}$ V. T. 271, N. 7.

5) $\int_0^\infty Sin(q\,Arctg\,x).\,l\,x\,\frac{dx}{x(1+x^2)^{\frac{1}{2}q}} = -\frac{\pi}{2}\,\{\mathrm{A}+\mathrm{Z}'(q)\}$ V. T. 307, N. 11.

6) $\int_0^\infty Cos(q\,Arctg\,x)\,.\,l\,x\,\frac{dx}{(1+x^2)^{\frac{1}{2}q}} = -\frac{\pi}{2\,(q-1)}$ V. T. 307, N. 10.

7) $\int_0^\infty Sin(q\,Arccot\,x)\,.\,l\,x\,\frac{x^{q-1}\,dx}{(1+x^2)^{\frac{1}{2}q}} = \frac{\pi}{2}\,\{\mathrm{A}+\mathrm{Z}'(q)\}$ V. T. 486, N. 5.

8) $\int_0^\infty Cos(q\,Arccot\,x)\,.\,l\,x\,\frac{x^{q-2}\,dx}{(1+x^2)^{\frac{1}{2}q}} = \frac{\pi}{2\,(q-1)}$ V. T. 486, N. 6.

9) $\int_0^\infty Sin\left\{(r+1)\,Arctg\left(\frac{p}{qx}\right)\right\}.\,l\,x\,\frac{x^r}{\sqrt{p^2+q^2x^2}^{\,r+1}}\,dx = \frac{\pi}{2\,q^{r+1}}\left\{l\frac{p}{q}+\mathrm{A}+\mathrm{Z}'(r+1)\right\}$
V. T. 307, N. 11.

10) $\int_0^\infty Cos\left\{(r+1)\,Arctg\left(\frac{p}{qx}\right)\right\}.\,l\,x\,\frac{x^{r-1}}{\sqrt{p^2+q^2x^2}^{\,r+1}}\,dx = \frac{\pi}{2p\,r\,q^r}$ V. T. 307, N. 10.

11) $\int_0^\infty e^{s\,Cos\,r\,x}\,Cos\left\{s\,Sin\,r\,x + a\,Arctg\,\frac{x}{q}\right\}\,\frac{dx}{(q^2+x^2)^{\frac{1}{2}a}} = 0$ (H, 64).

ADDITIONS.

T. 14. $11) \int \frac{dx}{\sqrt{(1-x^2)(1-x^2+p^2x^2)}} = F'(\sqrt{1-p^2})$ (VIII, 344).

T. 17. $24) \int \frac{x^p\,dx}{(2+x^2)^q} = 2^{\frac{1}{2}p-q-\frac{1}{2}} \frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(q-\frac{p+1}{2}\right)}{\Gamma(q)}$ (VIII, 293).

T. 18. $16) \int \left[\frac{1}{1+x^{2a}} - \frac{1}{1+x^2}\right] \frac{dx}{x} = 0$ (VIII, 701).

$17) \int \left[\frac{1}{1+x^{2a}} - \frac{1}{1+x^{2b}}\right] \frac{dx}{x} = 0$ (VIII, 702).

$18) \int \frac{\left(x-\frac{1}{x}\right)^p}{\left(x^2+\frac{1}{x^2}\right)^q} \left(x+\frac{1}{x}\right) \frac{dx}{x} = 2^{\frac{1}{2}p-q+\frac{1}{4}}\, Cos^2 \frac{1}{2}p\pi \frac{\Gamma\left(\frac{p+1}{2}\right)\Gamma\left(q-\frac{p+1}{2}\right)}{\Gamma(q)}$ (VIII, 293).

T. 35. $32) \int (Cot\,x-1)^{r-1} \frac{dx}{Sin\,2x} = \frac{\pi}{2\,Sin\,r\pi}$ (VIII, 545).

T. 41. $22) \int Cos^{p+2r-2}x\,.\,Cos\,px\,dx = \frac{\pi}{2^{p+2r-1}} \frac{\Gamma(p+2r-1)}{\Gamma(p+r)\Gamma(r)}$ (VIII, 611).

T. 59. 34) $\int \frac{Sin\,x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^7}\,dx = \frac{1}{5p^2}\left[-1+\frac{1}{\sqrt{1-p^2}^5}\right]$

35) $\int \frac{Sin\,x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin\,x}^7}\,dx = \frac{1}{15p^4}\left[-(2+3p^2)+\frac{2}{\sqrt{1-p^2}^3}\right]$

36) $\int \frac{Sin\,x\,.\,Cos^5 x}{\sqrt{1-p^2 Sin\,x}^7}\,dx = \frac{1}{15p^6}\left[-(8+4p^2+3p^4)+\frac{8}{\sqrt{1-p^2}}\right]$

37) $\int \frac{Sin\,x\,.\,Cos^7 x}{\sqrt{1-p^2 Sin^2 x}^7}\,dx = \frac{1}{5p^8}\left[(16-8p^2-2p^4-p^6)-16\sqrt{1-p^2}\right]$

38) $\int \frac{Sin^3 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^7}\,dx = \frac{1}{15p^4}\left[2-\frac{2-5p^2}{\sqrt{1-p^2}^5}\right]$,

39) $\int \frac{Sin^3 x\,.\,Cos^3 x}{\sqrt{1-p^2 Cos^2 x}^7}\,dx = \frac{2}{15p^6}\left[(4+p^2)-\frac{4-5p^2}{\sqrt{1-p^2}^3}\right]$

40) $\int \frac{Sin^3 x\,.\,Cos^5 x}{\sqrt{1-p^2 Sin\,2\,x}^7}\,dx = \frac{2}{15p^8}\left[-(24-8p^2-p^2)+4\,\frac{6-5p^2}{\sqrt{1-p^2}}\right]$

41) $\int \frac{Sin^5 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^7}\,dx = \frac{1}{15p^6}\left[-8+\frac{8-20p^2+25p^4}{\sqrt{1-p^2}^5}\right]$

42) $\int \frac{Sin^5 x\,.\,Cos^3 x}{\sqrt{1-p^2 Sin^2 x}^7},\,dx = \frac{2}{15p^8}\left[4(6-p^2)-\frac{24-40p^2+15p^4}{\sqrt{1-p^2}^3}\right]$

43) $\int \frac{Sin^7 x\,.\,Cos\,x}{\sqrt{1-p^2 Sin^2 x}^7}\,dx = \frac{1}{5p^8}\left[-16+\frac{16-40p^2+30p^4-5p^6}{\sqrt{1-p^2}^5}\right]$

Sur 34) à 43) voyez M., D. 16, 28.

T. 62. 17) $\int Sin^{2b+1} x\,.\,Sin\{(2a+1)x\}\,dx = \frac{(-1)^a \pi}{2^{2b+1}}\binom{2b+1}{b-a}$ (VIII, 275).

18) $\int Sin^{2b} x\,.\,Cos\,2\,a\,x\,dx = \frac{(-1)^a \pi}{2^{2b}}\binom{2b}{b-a}$ (VIII, 275).

19) $\int Cos^{2b} x\,.\,Cos\,2\,a\,x\,dx = \frac{\pi}{2^{2b}}\binom{2b}{b-a}$ (VIII, 275).

20) $\int Cos^{2b+1} x\,.\,Cos\{(2a+1)x\}\,dx = \frac{\pi}{2^{2b+1}}\binom{2b+1}{b-a}$ (VIII, 275).

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T. 65. 23) $\int \frac{Sin\, x}{1-2p\, Cos\, x+p^2}\, dx = \frac{1}{p}\, l\, \frac{1-p}{1+p}\, [p^2<1], = \frac{1}{p}\, l \frac{p-1}{p+1}\, [p^2>1]$ (VIII, 679*).

T. 87. 9) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x-i)}\right\}}{i}\, \frac{dx}{e^{\pi x}-1} =$

$= (-1)^a \sum_a^\infty \left\{\frac{2^{2n-1}-1}{n} B_{2n-1} + (-1)^n \frac{2n-1}{2n}\right\} \frac{p^{2n-2a}}{1^{2n-2a/1}}$ (VIII, 578).

10) $\int \frac{(1+xi)^{2a-1}\left\{e^{p(i-x)}+e^{p(x-i)}\right\}-(1-xi)^{2a-1}\left\{e^{p(x+i)}+e^{-p(x+i)}\right\}}{i}\, \frac{dx}{e^{2\pi x}-1} =$

$= (-1)^a \sum_a^\infty \left\{\frac{1}{n} B_{2n-1} + (-1)^{n-1} \frac{n-1}{n}\right\} \frac{p^{2n-2a}}{1^{2n-2a/1}}$ (VIII, 578).

T. 97. 24) $\int \frac{x}{e^{px}-e^{-px}}\, \frac{dx}{q^2+x^2} = \frac{\pi}{4pq} + \frac{\pi}{2} \sum_1^\infty \frac{(-1)^n}{2pq+(2n-1)\pi}$ (VIII, 636*).

T. 107. 24) $\int \sqrt{\left(l\frac{1}{x}\right)}\, .\, x^{p-1}\, dx = \frac{1}{2p}\sqrt{\frac{\pi}{p}}$ (VIII, 542).

T. 123. 19) $\int (x^p-1)^a (x^q-1) \frac{dx}{lx} = \sum_0^a (-1)^n \binom{a}{n}\, l\, \frac{q+(a-n)p+1}{(a-n)p+1}$ (VIII, 347).

T. 130. 25) $\int \frac{x^q-x^{-q}}{x^p+x^{-p}}\, \frac{dx}{x\, l x} = l\, Tg\left(\frac{p+q}{p}\, \frac{\pi}{4}\right)$ (VIII, 350).

T. 141. 14) $\int l\left(\frac{1+x^2}{x}\right).\, x^{2a-1}\, dx = \frac{1}{a}\, l2 + \frac{1}{2a^2} - \frac{1}{a} \sum_0^\infty \frac{(-1)^n}{2a+n+1}$ (VIII, 422).

T. 144. 18) $\int lx \frac{dx}{(1+x^2)^2} = l2$ (VIII, 590*).

T. 145. 38) $\int_{-1}^{+1} l(1-p^2x^2)^2 \frac{dx}{\sqrt{1-x^2}} = 4\pi\, l\, \frac{1+\sqrt{1-p^2}}{2}\, [p^2<1], = -4\pi\, l 2p\, [p^2>1]$

(VIII, 550).

39) $\int_{-1}^{+1} l(p^2-x^2)^2 \frac{dx}{\sqrt{1-x^2}} = -4\pi\, l2\, [p^2<1], = 4\pi\, l \frac{p+\sqrt{p^2-1}}{2}\, [p^2>1]$

(VIII, 550).

T. 151. 29) $\int Sin^s\, rx\,.\,Sin\left\{s\left(\frac{1}{2}\pi - rx\right)\right\}\frac{dx}{x} = -\frac{\pi}{2^{s+1}}$ (H, 12).

30) $\int Cos^s\, rx\,.\,Sin\, srx\,\frac{dx}{x} = \frac{\pi}{2^{s+1}}(2^s - 1)$ (H, 11).

31) $\int Cos^s\, rx\,.\,Sin\, tx\,\frac{dx}{x} = \frac{\pi}{2}$ $[t > rs]$ (H, 24).

T. 152. 24) $\int Sin^s\, rx\,.\,Sin\left\{s\left(\frac{1}{2}\pi - rx\right)\right\}.\,Sin\, x\,\frac{dx}{x} = -\frac{\pi}{2^{s+1}}$ (H, 13).

25) $\int Sin^s\, rx\,.\,Sin\left\{s\left(\frac{1}{2}\pi - rx\right)\right\}.\,Cos\, x\,\frac{dx}{x} = -\frac{\pi}{2^{s+1}}$ (H, 12).

26) $\int Sin^s\, rx\,.\,Cos\left\{s\left(\frac{1}{2}\pi - rx\right)\right\}.\,Sin\, x\,\frac{dx}{x} = \frac{\pi}{2^{s+1}}$ (H, 12).

27) $\int Cos^s\, rx\,.\,Sin\, srx\,.\,Cos\, x\,\frac{dx}{x} = \frac{\pi}{2^{s+1}}(2^s - 1)$ (H, 11).

28) $\int Cos^s\, rx\,.\,Cos\, srx\,.\,Sin\, x\,\frac{dx}{x} = \frac{\pi}{2^{s+1}}$ (H, 11). 29) $\int Cos^s\, rx\,.\,Sin\, tx\,.\,Cos\, x\,\frac{dx}{x} = \frac{\pi}{2}$ (H, 24).

30) $\int Cos^s\, rx\,.\,Cos\, tx\,.\,Sin\, x\,\frac{dx}{x} = 0$ (H, 24).

[Dans 29) et 30) on a $t > sr$].

T. 157. 29) $\int Sin^2\, qx\,.\,Sin^2\, rx\,.\,Sin\, px\,\frac{dx}{x^3} = \frac{1}{4}pr\pi\,[2q \geqq 2r + p > 2p], = \frac{1}{32}\pi\left\{16qr - (2q + 2r - p)^2\right\}$

$[2r > p > 2(q - r)], = \frac{3}{8}q^2\pi\,[2r = 2q = p], = \frac{1}{8}r^2\pi\,[2r = p \leqq q], = \frac{1}{8}q^2\pi\,[2r = p = q], =$

$= \frac{1}{8}q\pi(4r - q)[2q > p = 2r > q], = \frac{1}{16}\pi(4r^2 + p^2)[2q \geqq 2r + p > 4r], =$

$= \frac{1}{32}\pi\,[(2q + 2r - p)^2 - 8q(q - p)]\,[2q < 2r + s < 2s < 4q], = \frac{1}{8}\pi(2q^2 + r^2)$

$[2q = p > 2r], = \frac{1}{32}\pi\left\{(2q + 2r - p)^2 + 2p^2\right\}[2q < p > 2r], = \frac{1}{16}p^2\pi$

$[p - 2r \geqq 2q < p]$ (E. O. A.).

30) $\int Sin^{2a}\, x\,.\,Cos\, px\,\frac{dx}{x^2} = \frac{\pi}{2^{2a+1}}\left\{-\binom{2a}{a}p + 4\sum_1^a(-1)^n\binom{2a}{a-n}n\right\}$ Enneper, Schl. Z. 11, 251.

T. 158. 9) $\int (1 - Cos^{2a} x) \, Cos\, p x \frac{dx}{x^2} = \frac{\pi}{2^{2a+1}} \left[p \left\{ \binom{2a}{a} - 2^{2a} \right\} + 2a \binom{2a}{a} \right]$

10) $\int (1 - Cos^{2a+1} x) \, Cos\, p x \frac{dx}{x^2} = \frac{\pi}{2^{2a+1}} \left[p . 2^{2a} + (2a+1) \binom{2a}{a} \right]$

11) $\int (1 - Cos^{2a} x) \, Sin\, p x \frac{dx}{x^3} = \frac{\pi}{2^{2a+2}} \left[p^2 \left\{ \binom{2a}{a} - 2^{2a} \right\} + 4ap \binom{2a}{a} \right]$

12) $\int (1 - Cos^{2a+1} x) \, Sin\, p x \frac{dx}{x^3} = \frac{\pi}{2^{2a+3}} \left[- p^2 . 2^{2a+1} + 4(2a+1) p \binom{2a}{a} \right]$

Sur 9) à 12) voyez Enneper, Schl. Z. 11, 251.

T. 160. 31) $\int Sin^2 p x \frac{x\, dx}{q^2 + x^2} = \infty =$ 32) $\int Cos^2 p x \frac{x\, dx}{q^2 + x^2}$ (VIII, 334).

T. 163. 20) $\int Cos^a x . Cos\, a x \frac{x\, dx}{q^2 + x^2} = \infty$ (V, 17).

21) $\int Cos^a x . Cos\, 2ax \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} e^{-aq} (1 + e^{-2q})^a$ (V, 21).

22) $\int Cos^a x . Cos\, 2ax \frac{x\, dx}{q^2 + x^2} = - \frac{1}{2^{a+1}} \left[e^{aq} \sum_0^a \binom{a}{n} e^{2nq} Ei \{ -q(a+2n) \} + e^{-aq} \sum_0^a \binom{a}{n} \right.$
$\left. e^{-2nq} Ei \{ q(a+2n) \} \right]$ (V, 26).

23) $\int Cos^a x . Cos\, 3ax \frac{dx}{q^2 + x^2} = \frac{\pi}{2^{a+1} q} e^{-3aq} (1 + e^{-2q})^a$ (V, 21).

24) $\int Cos^a x . Cos\, 3ax \frac{x\, dx}{q^2 + x^2} = - \frac{1}{2^{a+1}} \left[e^{2aq} \sum_0^a \binom{a}{n} e^{2nq} Ei \{ -2q(a+n) \} + e^{-2aq} \sum_0^a \binom{a}{n} \right.$
$\left. e^{-2nq} Ei \{ 2q(a+n) \} \right]$ (V, 26).

25) $\int Cos^a x . Cos \{ (a-1) x \} \frac{x\, dx}{q^2 + x^2} = - \frac{1}{2^{a+1}} \left[e^{-q} \sum_0^a \binom{a}{n} e^{2nq} Ei \{ q(1-2n) \} + \right.$
$\left. + e^{q} \sum_0^a \binom{a}{n} e^{-2nq} Ei \{ q(2n-1) \} \right]$ (V, 27).

26) $\int Cos^a x . Cos \{ (a+1) x \} \frac{x\, dx}{q^2 + x^2} = - \frac{1}{2^{a+1}} \left[e^{q} \sum_0^a \binom{a}{n} e^{2nq} Ei \{ -q(2n+1) \} + \right.$
$\left. + e^{-q} \sum_0^a \binom{a}{n} e^{-2nq} Ei \{ q(2n+1) \} \right]$ (V, 27).

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$$29)\int Sin\, q x . Sin^{2a} x \frac{dx}{x^{2b}} = \frac{(-1)^b}{2^{2a} 1^{2b+1/1}} \left[\binom{2a}{a} q^{2b-1}\, lq + \sum_1^a (-1)^n \binom{2a}{a-n} \left\{ (2n+q)^{2b-1} \right.\right.$$
$$\left.\left. l(2n+q) - (2n-q)^{2b-1}\, l(2n-q) \right\} \right]$$

$$30)\int Sin\, q x . Sin^{2a+1} x \frac{dx}{x^{2b+1}} = \frac{(-1)^b}{2^{2a+1} 1^{2b/1}} \sum_0^a (-1)^n \binom{2a+1}{a-n} \left\{ (2n+q+1)^{2b}\, l(2n+q+1) - \right.$$
$$\left. - (2n-q+1)^{2b}\, l(2n-q+1) \right\}$$

$$31)\int Cos\, q x . Sin^{2a} x \frac{dx}{x^{2b+1}} = \frac{(-1)^b}{2^{2a} 1^{2b/1}} \left[\binom{2a}{a} q^{2b-2}\, lq + \sum_1^a (-1)^n \binom{2a}{a-n} \left\{ (2n+q)^{2b-2} \right.\right.$$
$$\left.\left. l(2n+q) + (2n-q)^{2b-2}\, l(2n-q) \right\} \right]$$

$$32)\int Cos\, q x . Sin^{2a+1} x \frac{dx}{x^{2b}} = \frac{(-1)^b}{2^{2a+1} 1^{2b-1/1}} \sum_0^a (-1)^n \binom{2a+1}{a-n} \left\{ (2n+q+1)^{2b-1} \right.$$
$$\left. l(2n+q+1) + (2n-q+1)^{2b-1}\, l(2n-q+1) \right\}$$

$$33)\int Sin\, q x . Sin^{2a} x \frac{dx}{x^{2b+2r-1}} = \frac{(-1)^{b-1} \pi\, Sec\, r\pi}{2^{2a+1} 1^{2b+2r-2/1}} \left[\binom{2a}{a} q^{2b+2r-2} + \sum_1^a (-1)^n \binom{2a}{a-n} \right.$$
$$\left. \left\{ (2n+q)^{2b+2r-2} - (2n-q)^{2b+2r-2} \right\} \right]$$

$$34)\int Sin\, q x . Sin^{2a+1} x \frac{dx}{x^{2b+2r}} = \frac{(-1)^{b-1} \pi\, Sec\, r\pi}{2^{2a+2} 1^{2b+2r-1/1}} \sum_0^a (-1)^n \binom{2a+1}{a-n} \left\{ (2n+q+1)^{2b+2r-1} - \right.$$
$$\left. - (2n-q+1)^{2b+2r-1} \right\}$$

$$35)\int Cos\, q x . Sin^{2a} x \frac{dx}{x^{2b+2r-1}} = \frac{(-1)^b \pi\, Cosec\, r\pi}{2^{2a+1} 1^{2b+2r-2/1}} \left[\binom{2a}{a} q^{2b+2r-2} + \sum_1^a (-1)^n \binom{2a}{a-n} \right.$$
$$\left. \left\{ (2n+q)^{2b+2r-2} + (2n-q)^{2b+2r-2} \right\} \right]$$

$$36)\int Cos\, q x . Sin^{2a+1} x \frac{dx}{x^{2b+2r}} = \frac{(-1)^b \pi\, Cosec\, r\pi}{2^{2a+2} 1^{2b+2r-1/1}} \sum_0^a (-1)^n \binom{2a+1}{a-n} \left\{ (2n+q+1)^{2b+2r-1} + \right.$$
$$\left. + (2n-q+1)^{2b+2r-1} \right\}$$

$$37)\int Sin\, q x . (1 - Cos^{2a} x) \frac{dx}{x^{2r+2}} = \frac{\pi\, Cosec\, r\pi}{2^{2a+1} 1^{2r+1/1}} \sum_1^a \binom{2a}{a-n} \left\{ -2 q^{2r+1} - (2n-q)^{2r+1} + \right.$$
$$\left. + (2n+q)^{2r+1} \right\}$$

$$38)\int Sin\, q x . (1 - Cos^{2a+1} x) \frac{dx}{x^{2r+2}} = \frac{\pi\, Cosec\, r\pi}{1^{2a+2} 1^{2r+1/1}} \sum_0^a \binom{2a+1}{a-n} \left\{ -2 q^{2r+1} - (2n-q+1)^{2r+1} + \right.$$
$$\left. + (2n+q+1)^{2r+1} \right\}$$

$$39)\int Cos\, q x . (1 - Cos^{2a} x) \frac{dx}{x^{2r+1}} = \frac{\pi\, Cosec\, r\pi}{2^{2a+1} 1^{2r/1}} \sum_1^a \binom{2a}{a-n} \left\{ -2 q^{2r} + (2n-q)^{2r} + (2n+q)^{2r} \right\}$$

$$40)\int Cos\, q x . (1 - Cos^{2a+1} x) \frac{dx}{x^{2r+1}} = \frac{\pi\, Cosec\, r\pi}{2^{2a+2} 1^{2r/1}} \sum_0^a \binom{2a+1}{a-n} \left\{ -2 q^{2r} + (2n-q+1)^{2r} + \right.$$
$$\left. + (2n+q+1)^{2r} \right\}$$

Dans 29) à 36) on a $a \geqq b$. Dans 33), 34), 37), 38) on a $r^2 < \frac{1}{4}$.

Dans 35), 36), 39), 40) on a $0 < r < 1$. Sur 29) à 40) voyez Enneper, Schl. Z. 11, 251.

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T. 162. 35) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right)\frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}}\{1-(1-e^{-2qr})^s\}$ (H, 49).

36) $\int Sin^{2a}x . Sin\,2ax\frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}q}\sum_0^{2a}(-1)^n\binom{2a}{n}[e^{-2nq}Ei(2nq)-e^{2nq}Ei(-2nq)]$ (V, 31).

37) $\int Sin^{2a}x . Sin\,4ax\frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}q}\Big[e^{-2aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{-2nq}Ei\{2q(a+n)\} -$

$- e^{2aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{2nq}Ei\{-2q(a+n)\}\Big]$ (V, 37).

38) $\int Sin^{2a}x . Sin\,6ax\frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+1}q}\Big[e^{-4aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{-2nq}Ei\{2q(2a+n)\} -$

$- e^{4aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{2nq}Ei\{-2q(2a+n)\}\Big]$ (V, 38).

39) $\int Sin^{2a}x . Sin\,6ax\frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+1}}e^{-4aq}(1-e^{-2q})^{2a}$ (V, 50).

40) $\int Sin^{2a+1}x . Sin\{(2a+1)x\}\frac{x\,dx}{q^2+x^2} = \infty$ (V, 31).

41) $\int Sin^{2a+1}x . Sin\{(2a+1)2x\}\frac{dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}q}e^{(2a+1)q}(1-e^{-2q})^{2a+1}$ (V, 41).

42) $\int Sin^{2a+1}x . Sin\{(2a+1)2x\}\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}}\Big[e^{(2a+1)q}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$e^{2nq}Ei\{-q(2a+2n+1)\} + e^{-(2a+1)q}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}e^{-2nq}Ei\{q(2a+2n+1)\}\Big]$

(V, 49).

43) $\int Sin^{2a+1}x . Sin\{(2a+1)3x\}\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}}\Big[e^{(2a+1)2q}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$e^{2nq}Ei\{-2q(2a+n+1)\} + e^{-(2a+1)2q}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}e^{-2nq}Ei\{2q(2a+n+1)\}\Big]$

(V, 49).

44) $\int Sin^s rx . Cos\left(\frac{1}{2}s\pi - srx\right)\frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+1}q}(1-e^{-2qr})^s$ (H, 49).

45) $\int Sin^{2a}x . Cos\,2ax\frac{x\,dx}{q^2+x^2} = \infty$ (V, 31).

46) $\int Sin^{2a}x . Cos\,4ax\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}}\Big[e^{2aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{2nq}Ei\{-2q(a+n)\} +$

$+ e^{-2aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{-2nq}Ei\{2q(a+n)\}\Big]$ (V, 48).

47) $\int Sin^{2a}x . Cos\,6ax\frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+1}}\Big[e^{4aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{2nq}Ei\{-2q(2a+n)\} +$

$+ e^{-4aq}\sum_0^{2a}(-1)^n\binom{2a}{n}e^{-2nq}Ei\{2q(2a+n)\}\Big]$ (V, 49).

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48) $\int Sin^{2a} x . Cos\, 6\, a\, x \frac{dx}{q^2+x^2} = \frac{(-1)^a \pi}{2^{2a+1}} e^{-4aq}(1-e^{-2q})^{2a}$ (V, 40).

49) $\int Sin^{2a+1} x . Cos\{(2a+1)x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} [e^{-2nq} Ei(2nq) -$

$- e^{2nq} Ei(-2nq)]$ (V, 31).

50) $\int Sin^{2a+1} x . Cos\{(2a+1)2x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^{-(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{-2nq} Ei\{q(2a+2n+1)\} - e^{(2a+1)q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{-q(2a+2n+1)\}\Big]$

(V, 38).

51) $\int Sin^{2a+1} x . Cos\{(2a+1)3x\} \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^{-(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$e^{-2nq} Ei\{2q(2a+n+1)\} - e^{(2a+1)2q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{-2q(2a+n+1)\}\Big]$

(V, 38).

52) $\int Sin^{2a+1} x . Cos\{(2a+1)3x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} e^{-(4a+2)q}(1-e^{-2q})^{2a+1}$ (V, 50).

53) $\int Sin^{2a+1} x . Cos\, 2\, a\, x \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^q \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{-2nq} Ei\{q(2n-1)\} -$

$- e^{-q} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n} e^{2nq} Ei\{q(1-2n)\}\Big]$ (V, 38).

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23) $\int Sin^{2a} x . Sin\, 2ax . Sin\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}} \Big[e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} -$

$- e^{-2nq} Ei\{q(2n-p)\}] - e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}] \Big]$

(V, 45).

24) $\int Sin^{2a+1} x . Sin\{(2a+1)x\} . Sin\{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} [(1-e^{-(4a+2)q})$

$(1-e^{-2q})^{2a+1} + 1]$ (V, 44).

25) $\int Sin^{2a+1} x . Sin\{(2a+1)x\} . Sin\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+3}} e^{-pq} (1-e^{(2a+1)2q})(1-e^{-2q})^{2a+1}$

$[p > 4a+2], = \frac{(-1)^a\pi}{2^{2a+3}} \Big[(e^{-pq} - e^{pq})(1-e^{-2q})^{2a+1} + e^{pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{-2nq} +$

$+ e^{-pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ [$p < 4a+2$, fractionn.], $= \frac{(-1)^a\pi}{2^{2a+3}} \Big[(e^{-pq} - e^{pq})$

$(1-e^{-2q})^{2a+1} + e^{pq} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} + e^{-pq} \sum_0^d (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$

[$p < 4a+2$, ent.] $\Big[d = \mathcal{E} \frac{1}{2} p \Big]$ (V, 44).

26) $\int Sin^{2a+1} x . Sin\{(2a+1)x\} . Sin\, px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+3} q} \Big[e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{q(p-2n)\} + e^{-2nq} Ei\{q(p+2n)\}] - e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{-q(p+2n)\} + e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 34).

27) $\int Sin^{2a} x . Sin\, 2ax . Cos\, 4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+2}} [(1-e^{-4aq})(1-e^{-2q})^{2a} - 1]$ (V, 47).

28) $\int Sin^{2a} x . Sin\, 2ax . Cos\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}} e^{-pq} (1-e^{4aq})(1-e^{-2q})^{2a} [p > 4a], =$

$= \frac{(-1)^a\pi}{2^{2a+2}} \Big[(e^{pq} + e^{-pq})(1-e^{-2q})^{2a} - e^{pq} \sum_0^d (-1)^n \binom{2a}{n} e^{-2nq} - e^{-pq} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big]$

[$p < 4a$, fract.], $= \frac{(-1)^a\pi}{2^{2a+2}} \Big[(e^{pq} + e^{-pq})(1-e^{-2q})^{2a} - e^{pq} \sum_0^{d-1} (-1)^n \binom{2a}{n} e^{-2nq} -$

$- e^{-pq} \sum_0^d (-1)^n \binom{2a}{n} e^{2nq} \Big]$ [$p < 4a$, entier] $\Big[d = \mathcal{E} \frac{1}{2} p \Big]$ (V, 45, 46).

29) $\int Sin^{2a} x . Sin\, 2ax . Cos\, px \frac{dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2} q} \Big[e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} -$

$- e^{-2nq} Ei\{q(p+2n)\}] + e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} -$

$- e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 36).

30) $\displaystyle\int Sin^{2a+1} x . Sin\left\{(2a+1)x\right\} . Cos px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+3}}\Big[e^{pq}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$\displaystyle[e^{2nq}\,Ei\left\{-q(p+2n)\right\} + e^{-2nq}\,Ei\{q(2n-p)\}] + e^{-pq}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$\displaystyle[e^{2nq}\,Ei\left\{q(p-2n)\right\} + e^{-2nq}\,Ei\left\{q(p+2n)\right\}]\Big]$ (V, 45).

31) $\displaystyle\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Tg\,2rx \frac{dx}{q^2+x^2} = -\frac{\pi}{2^{s+1}q}\,\frac{1+e^{-2qr}}{1+e^{-4qr}}(1-e^{-2qr})^{s+1}$ (H, 148).

32) $\displaystyle\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Cot\,2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^{s+1}q}\,\frac{1+e^{-4qr}}{1+e^{-2qr}}(1-e^{-2qr})^{s-1}$ (H, 148).

33) $\displaystyle\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg\,2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q}\,\frac{1+e^{-2qr}}{e^{2qr}+e^{-2qr}}(1-e^{-2qr})^s$

(H, 169).

34) $\displaystyle\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot\,2rx \frac{dx}{q^2+x^2} = \frac{\pi}{2^s q}\,\frac{1+e^{-4qr}}{1+e^{-2qr}}$

$(1-e^{-2qr})^{s-2}\,e^{-2qr}$ (H, 169).

35) $\displaystyle\int Sin^{2a} x . Cos\,2ax . Sin\,4ax \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}}[(1+e^{-4aq})(1-e^{-2q})^{2a}-1]$ (V, 44).

36) $\displaystyle\int Sin^{2a} x . Cos\,2ax . Sin px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^a\pi}{2^{2a+2}}e^{-pq}(1+e^{-4aq})(1-e^{-2q})^{2a}\,[p>4a], =$

$\displaystyle = \frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^{-pq}-e^{pq})(1-e^{-2q})^{2a} + e^{pq}\sum_0^d(-1)^n\binom{2a}{n}e^{-2nq} + e^{-pq}\sum_0^d(-1)^n$

$\displaystyle\binom{2a}{n}e^{2nq}\Big]$ [$p<4a$, fractionn.], $\displaystyle= \frac{(-1)^a\pi}{2^{2a+2}}\Big[(e^{-pq}-e^{pq})(1-e^{-2q})^{2a} + e^{pq}\sum_0^{d-1}(-1)^n$

$\displaystyle\binom{2a}{n}e^{-2nq} + e^{-pq}\sum_0^d(-1)^n\binom{2a}{n}e^{2nq}\Big]$ [$p<4a$, entier] $\left[d = \mathcal{E}\frac{1}{2}p\right]$ (V, 43).

37) $\displaystyle\int Sin^{2a} x . Cos\,2ax . Sin px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+2}q}\Big[e^{-pq}\sum_0^{2a}(-1)^n\binom{2a}{n}[e^{2nq}\,Ei\left\{q(p-2n)\right\} +$

$\displaystyle + e^{-2nq}\,Ei\left\{q(p+2n)\right\}] - e^{pq}\sum_0^{2a}(-1)^n\binom{2a}{n}[e^{2nq}\,Ei\{-q(p+2n)\} + e^{-2nq}\,Ei\{q(2n-p)\}]\Big]$

(V, 34).

38) $\displaystyle\int Sin^{2a+1} x . Cos\left\{(2a+1)x\right\} . Sin px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+3}}\Big[e^{pq}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$\displaystyle[e^{2nq}\,Ei\left\{-q(p+2n)\right\} - e^{-2nq}\,Ei\left\{q(2n-p)\right\}] - e^{-pq}\sum_0^{2a+1}(-1)^n\binom{2a+1}{n}$

$\displaystyle[e^{2nq}\,Ei\left\{q(p-2n)\right\} - e^{-2nq}\,Ei\left\{q(p+2n)\right\}]\Big]$ (V, 45).

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T. 164. 39) $\int Sin^{2a} x \,.\, Cos\, 2ax \,.\, Cos\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}}{2^{2a+2}} \Big[e^{pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{-q(p+2n)\} +$

$+ e^{-2nq} Ei\{q(2n-p)\}] + e^{-pq} \sum_0^{2a} (-1)^n \binom{2a}{n} [e^{2nq} Ei\{q(p-2n)\} +$

$+ e^{-2nq} Ei\{q(p+2n)\}] \Big]$ (V, 45).

40) $\int Sin^{2a+1} x \,.\, Cos\{(2a+1)x\} \,.\, Cos\{(2a+1)2x\} \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big\{(1+e^{-(4a+2)q})$

$(1-e^{-2q})^{2a+1} + 1\Big\}$ (V, 47).

41) $\int Sin^{2a+1} x \,.\, Cos\{(2a+1)x\} \,.\, Cos\, px \frac{x\,dx}{q^2+x^2} = \frac{(-1)^{a-1}\pi}{2^{2a+3}} e^{-pq} (1+e^{(4a+2)q})(1-e^{-2q})^{2a+1}$

$[p > 4a+2], = \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^{pq}+e^{-pq})(1-e^{-2q})^{2a+1} - e^{pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{-2nq} -$

$- e^{-pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$ $[p < 4a+2$, fractionn.], $= \frac{(-1)^{a-1}\pi}{2^{2a+3}} \Big[(e^{pq}+e^{-pq})$

$(1-e^{-2q})^{2a+1} - e^{pq} \sum_0^{d-1} (-1)^n \binom{2a+1}{n} e^{-2nq} - e^{-pq} \sum_0^{d} (-1)^n \binom{2a+1}{n} e^{2nq} \Big]$

$[p < 4a+2$, entier] $\Big[d = \mathcal{E} \frac{1}{2} p \Big]$ (V, 46, 47).

42) $\int Sin^{2a+1} x \,.\, Cos\{(2a+1)x\} \,.\, Cos\, px \frac{dx}{q^2+x^2} = \frac{(-1)^a}{2^{2a+3} q} \Big[e^{-pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{q(p-2n)\} - e^{-2nq} Ei\{q(p+2n)\}] + e^{pq} \sum_0^{2a+1} (-1)^n \binom{2a+1}{n}$

$[e^{2nq} Ei\{-q(p+2n)\} - e^{-2nq} Ei\{q(2n-p)\}] \Big]$ (V, 36).

43) $\int Sin^s rx \,.\, Cos\left(\frac{1}{2} s\pi - srx\right) . Tg\, 2rx \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2^{s+1}} \; \frac{1+e^{-2qr}}{1+e^{-4qr}} (1-e^{-2qr})^{s+1}$ (H, 148).

44) $\int Sin^s rx \,.\, Cos\left(\frac{1}{2} s\pi - srx\right) . Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{s+1}} \; \frac{1+e^{-4qr}}{1+e^{-2qr}} (1-e^{-2qr})^{s-1}$ (H, 148).

45) $\int Sin^{s-1} rx \,.\, Cos\left\{\frac{1}{2}(s-1)\pi - (s+1)rx\right\} . Tg\, 2rx \frac{x\,dx}{q^2+x^2} = -\frac{\pi}{2^s} \; \frac{1+e^{-2qr}}{e^{2qr}+e^{-2qr}} (1-e^{-2qr})^s$
(H, 169).

46) $\int Sin^{s-1} rx \,.\, Cos\left\{\frac{1}{2}(s-1)\pi - (s+1)rx\right\} . Cot\, 2rx \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^s} \; \frac{1+e^{-4qr}}{1+e^{-2qr}}$

$(1-e^{-2qr})^{s-2} e^{-2qr}$ (H, 169).

47) $\int Cos^a x \,.\, Sin\, ax \,.\, Cos\, 2ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} [(e^{-2aq}-1)(1+e^{-2q})^a + 1]$ (V, 25).

48) $\int Cos^a x \,.\, Cos\, ax \,.\, Sin\, 2ax \frac{x\,dx}{q^2+x^2} = \frac{\pi}{2^{a+2}} [(1+e^{-2aq})(1+e^{-2q})^a - 1]$ (V, 24).

T. 166. 30) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Tg\,2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^s qr . Tg\,2qr . Cos\left(\frac{1}{2}s\pi - sqr\right)$ (H, 148).

31) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - srx\right) . Cot\,2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^s qr . Cot\,2qr . Cos\left(\frac{1}{2}s\pi - sqr\right)$
(H, 148).

32) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg\,2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^{s-1} qr . Tg\,2qr .$
$Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

33) $\int Sin^{s-1} rx . Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot\,2rx \frac{dx}{q^2-x^2} = \frac{\pi}{2q} Sin^{s-1} qr . Cot\,2qr .$
$Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

34) $\int Sin^s rx . Cos\left(\frac{1}{2}s\pi - srx\right) . Tg\,2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Sin^s qr . Tg\,2qr . Sin\left(\frac{1}{2}s\pi - sqr\right)$
(H, 148).

35) $\int Sin^s rx . Cos\left(\frac{1}{2}s\pi - srx\right) . Cot\,2rx \frac{x\,dx}{q^2-x^2} = -\frac{\pi}{2} Sin^s qr . Cot\,2qr . Sin\left(\frac{1}{2}s\pi - sqr\right)$
(H, 148).

36) $\int Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Tg\,2rx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Sin^{s-1} qr . Tg\,2qr .$
$Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

37) $\int Sin^{s-1} rx . Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\} . Cot\,2rx \frac{x\,dx}{q^2-x^2} = \frac{\pi}{2} Sin^{s-1} qr . Cot\,2qr .$
$Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$ (H, 171).

T. 180. 21) $\int \frac{Sin\{(2a-1)px\}}{Sin px} Sin^{2b} 2ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-1}}\left\{-\frac{a-1}{2}\binom{2b}{b}p + 2(2a-1)\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

22) $\int \frac{Sin\,2apx}{Sin px} Sin^{2b} 2ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-1}}\left\{-\frac{a}{2}\binom{2b}{b}p + 4a\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

23) $\int \frac{Cos\{(4a-1)px\}}{Cos px} Sin^{2b} 4ax \frac{dx}{x^2} = \frac{a\pi}{2^{2b-2}}\left\{\frac{p}{2}\binom{2b}{b} + 2\sum_1^b (-1)^n \binom{2b}{b-n} n\right\}$

Sur 21) à 23) v. Enneper, Schl. Z. 11, 251.

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T. 172. 23) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^2+x^2)} = \frac{\pi}{2^{s+1}q^2}(e^{qr}-e^{-qr})^s e^{-qt}$ (H, 163).

24) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^2-x^2)} = \frac{\pi}{2q^2} Sin^s qr . Cos\left(\frac{1}{2}s\pi - qt\right)$ (H, 164).

25) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(4q^4+x^4)} = \frac{\pi}{2^{s+3}q^4}(e^{2qr} - 2\,Cos 2qr + e^{-2qr})^{\frac{1}{2}s} e^{-qt}$.

$Cos\left\{s\,Arctg\left(\frac{Sin 2qr}{e^{2qr} - Cos 2qr}\right) + q(t-sr)\right\}$ (H, 163).

26) $\int Sin^s rx . Sin\left(\frac{1}{2}s\pi - tx\right)\frac{dx}{x(q^4-x^4)} = \frac{\pi}{4q^4}\left\{2^{-s}(e^{qr}-e^{-qr})^s e^{-qt} + Sin^s qr .\right.$

$\left. Cos\left(\frac{1}{2}s\pi - qt\right)\right.$ (H, 164).

27) $\int Cos^s rx . Sin\,tx \frac{dx}{x(q^2+x^2)} = -\frac{\pi}{2^{s+1}q^2}(e^{qr}+e^{-qr})^s e^{-qt}$ (H, 163).

28) $\int Cos^s rx . Sin\,tx \frac{dx}{x(q^2-x^2)} = -\frac{\pi}{2q^2} Cos^s qr . Cos\,qt$ (H, 164).

29) $\int Cos^s rx . Sin\,tx \frac{dx}{x(4q^4+x^4)} = -\frac{\pi}{2^{s+3}q^4}(e^{2qr} + 2\,Cos 2qr + e^{-2qr})^{\frac{1}{2}s} e^{-qt}$

$Cos\left\{s\,Arctg\left(\frac{Sin 2qr}{e^{2qr} + Cos 2qr}\right) - q(t-sr)\right\}$ (H, 163).

30) $\int Cos^s rx . Sin\,tx \frac{dx}{x(q^4-x^4)} = -\frac{\pi}{4q^4}\left\{2^{-s}(e^{qr}+e^{-qr})^s e^{-qt} + Cos^s qr . Cos\,qt\right\}$ (H, 163).

Dans 23) à 30) on a $t > sr$.

T. 175. 18) $\int Cos\,px \frac{dx}{x^2(x^2+2^2)(x^2+4^2)\dots(x^2+4a^2)} = \frac{(-1)^a\pi}{2^{2a+1}1^{2a/1}}\sum_0^a (-1)^n \binom{2a}{n}\frac{1}{a-n}e^{p(2n-2a)}$

(VIII, 434).

T. 191. 30) $\int \frac{Sin^{s-2} rx}{Cos\,rx} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{dx}{q^2+x^2} = \frac{\pi e^{-4qr}}{2^{s-2}q}\;\frac{(1-e^{-2qr})^{s-2}}{1+e^{-2qr}}$ (H, 169).

31) $\int \frac{Sin^{s-2} rx}{Cos\,rx} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{x\,dx}{q^2+x^2} = \frac{\pi e^{-4qr}}{2^{s-2}}\;\frac{(1-e^{-2qr})^{s-2}}{1+e^{-2qr}}$ (H, 169).

32) $\int \frac{Sin^{s-2} rx}{Cos\,rx} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{dx}{q^2-x^2} = \frac{\pi}{2q}\;\frac{Sin^{s-2}qr}{Cos\,qr} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$

(H, 171).

33) $\int \frac{Sin^{s-2} rx}{Cos\,rx} Cos\left\{(s-1)\frac{1}{2}\pi - (s+1)rx\right\}\frac{x\,dx}{q^2-x^2} = \frac{\pi}{2}\;\frac{Sin^{s-2}qr}{Cos\,qr} Sin\left\{(s-1)\frac{1}{2}\pi - (s+1)qr\right\}$

(H, 171).

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T. 204. 35) $\int \frac{Cos\,x - 2\,Cos\,2\,x\,.\,(Cos\,x + p\,Sin\,x)}{\sqrt{Cos\,x + p\,Sin\,x}^3} \frac{x\,dx}{Sin x.\sqrt{Sin\,x}} = \frac{4}{\sqrt{p}} l \{\sqrt{p} + \sqrt{1+p}\} - \frac{\pi}{\sqrt{1+p}}$ (VIII, 589*).

36) $\int \frac{Cos\,x - 2\,Cos\,2\,x\,.\,(Cos\,x - p\,Sin\,2\,x)}{\sqrt{Cos\,x - p\,Sin\,x}^3} \frac{x\,dx}{Sin x.\sqrt{Sin\,x}} = \frac{4}{\sqrt{p}}\,Arcsin(\sqrt{p}) - \frac{\pi}{\sqrt{1-p}}$ (VIII, 589*).

T. 224. 11) $\int \frac{x\,dx}{Cos\,(p-x)\,.\,Cos\,x} = p\,Cosec p\,.\,l Sec p$ (VIII, 338).

T. 226. 6) $\int_q^\infty Sin\,p\,x \frac{dx}{x} = \frac{\pi}{2} - Si(pq)$ (VIII, 289).

T. 269. 10) $\int e^{-q^2x^2}\,Cos\,p\,x\,dx = \frac{1}{q} e^{-\frac{p^2}{4q^2}} \sqrt{\pi}$ (VIII, 516*).

T. 278. 18) $\int e^{p\,Cos\,x}\,Cos\,(p\,Sin\,x) \frac{Sin\,\{(2\,a+1)\,x\}}{Sin\,x}\,dx = \frac{\pi}{p}\left[1 + \sum_0^a \frac{p^{2\,a-n}}{1^{2\,a-n-1/1}}\right]$ Vernier, A. M. 15, 165.

T. 325. 13) $\int l(1 - p^2 + p^2\,Cos^4\,x) \frac{dx}{\sqrt{1 - p^2\,Sin^2\,x}} = \frac{1}{2} \mathrm{F}'(p)\,.\,l \frac{4\,(1-p^2)^3}{p} - \frac{\pi}{4} \mathrm{F}'(\sqrt{1-p^2})$

Enneper, Schl. Z. 11, 74.

T. 330. 19) $\int l Sin\,x\,.\,dx = -\pi\,l 2$ (VIII, 257). 20) $\int l((Sin\,x))\,.\,dx = -\pi\,l 2 + 2\,\alpha\,\pi^2\,i$ (VIII, 258).

21) $\int l((-Sin\,x))\,.\,dx = -\pi\,l 2 + (2\,\alpha + 1)\,\pi^2\,i$ (VIII, 258).

22) $\int l\,Cos^2\,x\,.\,dx = -2\,\pi\,l 2$ (VIII, 257). 23) $\int l\,Tg^2\,x\,.\,dx = 0$ (VIII, 257).

T. 332. 11) $\int l \left\{\frac{1 + 2\,p\,Cos\,x + p^2}{1 - 2\,p\,Cos\,x + p^2}\right\}\,.\,Sin\,\{(2\,a+1)\,x\}\,dx = 2\,\pi\,p^{2\,a+1} \frac{(-1)^a}{2\,a+1}$ (VIII, 277).

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T. 371. 8) $\int e^{-px}\,Sin\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\Gamma(2b+2r-1)}\Big(\binom{2a}{a}(p^2+q^2)^{b+r-1}\,Sin\Big\{(b+r-1)$
$2\,Arctg\frac{q}{p}\Big\}+\sum_1^a(-1)^{n-1}\binom{2a}{a-n}\Big[\{p^2+(2n-q)^2\}^{b+r-1}\,Sin\Big\{(b+r-1)\,2\,Arctg\Big(\frac{2n-q}{p}\Big)\Big\}-$
$-\{p^2+(2n+q)^2\}^{b+r-1}\,Sin\Big\{(b+r-1)\,2\,Arctg\Big(\frac{2n+q}{p}\Big)\Big\}\Big]\Big)$

9) $\int e^{-px}\,Sin qx.Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\Gamma(2b+2r)}\sum_0^a(-1)^n\binom{2a+1}{a-n}\Big[\{p^2+(2n-q+1)^2\}^{b+r-\frac{1}{2}}$
$Cos\Big\{(2b+2r-1)\,Arctg\Big(\frac{2n-q+1}{p}\Big)\Big\}-\{p^2+(2n+q+1)^2\}^{b+r-\frac{1}{2}}\,Cos\Big\{(2b+2r-1)$
$Arctg\Big(\frac{2n+q+1}{p}\Big)\Big\}\Big]$

10) $\int e^{-px}\,Cos\,qx\,.\,Sin^{2a}x\,\frac{dx}{x^{2b+2r-1}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\Gamma(2b+2r-1)}\Big(-\binom{2a}{a}(p^2+q^2)^{b+r-1}\,Cos\Big\{(b+r-1)$
$2\,Arctg\frac{q}{p}\Big\}+\sum_1^a(-1)^{n-1}\binom{2a}{a-n}\Big[\{p^2+(2n-q)^2\}^{b+r-1}\,Cos\Big\{(b+r-1)\,2\,Arctg\Big(\frac{2n-q}{p}\Big)\Big\}+$
$+\{p^2+(2n+q)^2\}^{b+r-1}\,Cos\Big\{(b+r-1)\,2\,Arctg\Big(\frac{2n+q}{p}\Big)\Big\}\Big]\Big)$

11) $\int e^{-px}\,Cos\,qx\,.\,Sin^{2a+1}x\,\frac{dx}{x^{2b+2r}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\Gamma(2b+2r)}\sum_0^a(-1)^{n-1}\binom{2a+1}{a-n}$
$\Big[\{p^2+(2n-q+1)^2\}^{b+r-\frac{1}{2}}\,Sin\Big\{(2b+2r-1)\,Arctg\Big(\frac{2n-q+1}{p}\Big)\Big\}+\{p^2+(2n+q+1)^2\}^{b+r-\frac{1}{2}}$
$Sin\Big\{(2b+2r-1)\,Arctg\Big(\frac{2n+q+1}{p}\Big)\Big\}\Big]$

12) $\int e^{-px}\,Sin\,qx\,.\,(1-Cos^{2a}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a}\Gamma(2r+2)}\sum_1^a\binom{2a}{a-n}\Big[-2(p^2+q^2)^{\frac{2r+1}{2}}$
$Sin\Big\{(2r+1)\,Arctg\frac{q}{p}\Big\}-\Big\{p^2+(2n-q)^2\Big\}^{\frac{2r+1}{2}}\,Sin\Big\{(2r+1)\,Arctg\Big(\frac{2n-q}{p}\Big)\Big\}+$
$+\{p^2+(2n+q)^2\}^{\frac{2r+1}{2}}\,Sin\Big\{(2r+1)\,Arctg\Big(\frac{2n+q}{p}\Big)\Big\}\Big]$

13) $\int e^{-px}\,Sin\,qx\,.\,(1-Cos^{2a+1}x)\,\frac{dx}{x^{2r+2}}=\frac{\pi\,Cosec\,2r\pi}{2^{2a+1}\Gamma(2r+2)}\sum_0^a\binom{2a+1}{a-n}\Big[-2(p^2+q^2)^{\frac{2r+1}{2}}$
$Cos\Big\{(2r+1)\,Arctg\frac{q}{p}\Big\}-\{p^2+(2n-q+1)^2\}^{\frac{2r+1}{2}}\,Cos\Big\{2r\,Arctg\Big(\frac{2n-q+1}{p}\Big)\Big\}+$
$+\{p^2+(2n+q+1)^2\}^{\frac{2r+1}{2}}\,Cos\Big\{2r\,Arctg\Big(\frac{2n+q+1}{p}\Big)\Big\}\Big]$

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14) $\int e^{-px}\, Cos\, qx.(1-Cos^{2a} x)\frac{dx}{x^{2r+1}}=\frac{\pi\, Cosec\, 2r\pi}{2^{2a}\Gamma(2r+1)}\sum_{1}^{a}\binom{2a}{a-n}\Big[-2(p^2+q^2)^r\, Cos\Big\{2r\, Arctg\frac{q}{p}\Big\}+$

$+\{p^2+(2n-q)^2\}^r\, Cos\Big\{2r\, Arctg\Big(\frac{2n-q}{p}\Big)\Big\}+\{p^2+(2n+q)^2\}^r$

$Cos\Big\{2r\, Arctg\Big(\frac{2n+q}{p}\Big)\Big\}\Big]$

15) $\int e^{-px}\, Cos\, qx.(1-Cos^{2a+1} x)\frac{dx}{x^{2r+1}}=\frac{\pi\, Cosec\, 2r\pi}{2^{2a+1}\Gamma(2r+1)}\sum_{0}^{a}\binom{2a+1}{a-n}\Big[-2(p^2+q^2)^r$

$Sin\Big(2r\, Arctg\frac{q}{p}\Big)+\{p^2+(2n-q+1)^2\}^r\, Sin\Big\{(2r+1)\, Arctg\Big(\frac{2n-q+1}{p}\Big)\Big\}+$

$+\{p^2+(2n+q+1)^2\}^r\, Sin\Big\{(2r+1)\, Arctg\Big(\frac{2n+q+1}{p}\Big)\Big\}\Big]$

Dans 8) à 11) on a $a \geqq b$, $0 \leqq r < \frac{1}{2}$; dans 12) à 15) on a $0 \leqq r < \frac{1}{2}$.

Sur 8) à 15) voyez Enneper, Schl. Z. 11, 251.

T. 344. 25) $\int Arctg\left(\frac{1+p\,Sin^2 x}{1-p\,Sin^2 x}\sqrt{\frac{1-\sqrt{1-p^2}}{1+\sqrt{1-p^2}}}\right)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}}=\frac{\pi}{4}F'(p)$ Enneper, Schl. Z. 11, 74.

T. 351. 11) $\int_0^{\frac{\pi}{2}} E(p\,Sin x)\frac{Sin x}{\sqrt{1-p^2\,Sin^2 x}}dx=\frac{\pi}{2\sqrt{1-p^2}}$ (VIII, 478).

12) $\int_0^{\frac{\pi}{2}} \Upsilon(p,x)\frac{dx}{\sqrt{1-p^2\,Sin^2 x}}=\frac{1}{6}E'(p).\{F'(p)\}^2-\frac{1}{6}F'(p).l\frac{4(1-p^2)}{p}+\frac{1}{12}\pi F'\{\sqrt{1-p^2}\}$ (VIII, 267).

T. 376. 16) $\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Sin(r\,Sin\,s\,x).Sin^{2a}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^a\pi}{2^{2a+1}}(e^q-e^{-q})^{2a}(e^{re^{-qs}}+e^{-re^{-qs}}-2)$ $[s>2a]$ (V, 95).

17) $\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x).Sin^{2a+1}x\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-e^{-re^{-qs}})$ $[s>2a+1]$, $=\frac{(-1)^{a-1}\pi}{2^{2a+2}}[(e^q-e^{-q})^{2a+1}(e^{re^{-qs}}-e^{-re^{-qs}})-2r]$ $[s=2a+1]$ (V, 95).

18) $\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos(r\,Sin\,s\,x).Cos^a x\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+1}q}(e^q+e^{-q})^a(e^{re^{-qs}}-e^{-re^{-qs}})$ $[s\geqq a]$ (V, 95).

T. 395. 14) $\int e^{-\frac{q}{x}}Sin\,p\,x\frac{dx}{\sqrt{x}}=e^{-\sqrt{2pq}}\{Cos\sqrt{2pq}+Sin\sqrt{2pq}\}\sqrt{\frac{\pi}{2p}}$ V. T. 268, N. 12.

15) $\int e^{-\frac{q}{x}}Cos\,p\,x\frac{dx}{\sqrt{x}}=e^{-\sqrt{2pq}}\{Cos\sqrt{2pq}-Sin\sqrt{2pq}\}\sqrt{\frac{\pi}{2p}}$ V. T. 268, N. 13.

T. 397. 11) $\int_{-\infty}^{\infty} e^{-x^2}Sin\,2px.x\,dx=pe^{-p^2}\sqrt{\pi}$ (VIII, 516). 12) $\int_{-\infty}^{\infty} e^{-x^2}Cos\,2px.x\,dx=0$ (VIII, 516).

13) $\int_{-\infty}^{\infty} e^{-x^2}Sin\,2px\frac{dx}{x}=-2\sqrt{\pi}.\sum_0^\infty\frac{p^{2n+1}}{2n+1}\frac{1}{1^{n/1}}$ (VIII, 641).

14) $\int_{-\infty}^{\infty} e^{-c^2x^2}\{2q\,Sin(2c^2qx)+x\,Cos(2c^2qx)\}dx=0$ (VIII, 670).

15) $\int_{-\infty}^{\infty} e^{-c^2x^2}\{2q\,Cos(2c^2qx)-x\,Sin(2c^2qx)\}dx=\frac{q}{c}e^{-c^2q^2}\sqrt{\pi}$ (VIII, 670).

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T. 377. 13) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Sin\,(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}$$
$$(e^{pq}-e^{-pq})(e^{re^{-qs}}+e^{-re^{-qs}}-2)\,[p<s-2a-1]\ \ (\text{V},\ 96).$$

14) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Sin\,(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}(e^{pq}+e^{-pq})$$
$$(e^{re^{-qs}}+e^{-re^{-qs}}-2)\,[p<s-2a]\ \ (\text{V},\ 96).$$

15) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos\,(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Sin^{2a}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}(e^{pq}-e^{-pq})$$
$$(e^{re^{-qs}}-e^{-re^{-qs}})\left[\begin{matrix}2p>4a>s,\\ \text{ou}\ 4a>2p<s\end{matrix}\right],=\frac{(-1)^{a-1}\pi}{2^{2a+2}}(e^q-e^{-q})^{2a}\,[(e^{pq}-e^{-pq})(e^{re^{-qs}}-$$
$$-e^{-re^{-qs}})-2r]\left[\begin{matrix}2p<s<4a,\\ \text{ou}\ 2p>s>4a\end{matrix};\ \text{et}\ p=s-2a\right]\ \ (\text{V},\ 96).$$

16) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Sin\,(r\,Sin\,s\,x)\,.\,Sin\,p\,x\,.\,Cos^{a}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^{a}(e^{pq}-e^{-pq})$$
$$(e^{re^{-qs}}+e^{-re^{-qs}}-2)\,[p\leqq s-a]\ \ (\text{V},\ 96).$$

17) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos\,(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Sin^{2a+1}x\,\frac{x\,dx}{q^2+x^2}=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}$$
$$(e^{pq}+e^{-pq})(e^{re^{-qs}}-e^{-re^{-qs}})\left[\begin{matrix}2p>4a+2>s,\\ \text{ou}\ 4a+2>2p<s\end{matrix}\right],=\frac{(-1)^{a-1}\pi}{2^{2a+3}}(e^q-e^{-q})^{2a+1}$$
$$[(e^{pq}+e^{-pq})(e^{re^{-qs}}-e^{-re^{-qs}})-2r]\left[\begin{matrix}2p<s<4a+2,\\ \text{ou}\ 2p>s>4a+2\end{matrix};\ \text{et}\ p=s-2a-1\right]\ \ (\text{V},\ 96).$$

18) $$\int (e^{r\,Cos\,s\,x}-e^{-r\,Cos\,s\,x})\,Cos\,(r\,Sin\,s\,x)\,.\,Cos\,p\,x\,.\,Cos^{a}x\,\frac{dx}{q^2+x^2}=\frac{\pi}{2^{a+2}q}(e^q+e^{-q})^{a}(e^{pq}+e^{-pq})$$
$$(e^{re^{-qs}}-e^{-re^{-qs}})\left[\begin{matrix}2p\geqq 2a\leqq s,\\ \text{ou}\ 2a\geqq 2p\leqq s\end{matrix}\right]\ \ (\text{V},\ 96).$$

T. 431. 20) $$\int\frac{Cos\,q\,x\,.\,l\,Cos\,x+x\,Sin\,q\,x}{x^2+(l\,Cos\,x)^2}\,\frac{Cos^r x}{1-2p\,Cos\,2x+p^2}\,dx=\frac{\pi}{2(1-p^2)\,l\,\frac{1+p}{2}}\left(\frac{1+p^q}{2}\right)^r+\frac{\pi}{2(1-p)^2}$$

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CORRECTIONS.

CORRECTIONS.

T.	F.	Au lieu de	Lisez
3	3	(IV, 32).	(VIII, 320).
3	10	$\left(\begin{matrix}-p\\n\end{matrix}\right)$	$\left(\begin{matrix}p\\n\end{matrix}\right)$
4	7	V. T. 27, N. 4.	(VIII, 296).
4	18	$=$	$= Cos\, q\pi$.
10	2	V. T. 8, N. 13.	(VIII, 289*).
11	2	(IV, 48).	(VIII, 513).
12	12	$3+2p$	$3+2p^2$
12	19	$=$	$=\frac{1}{2}$
18	8	$=0$	$=1$
18	12	x^2	x^{2a}
20	3	VII,	VIII,
21	17	2π	2
23	2	N. 4.	N. 5.
24	8	Cr. 23, 142.	(VIII, 541).
24	9	$F'\Big($	$F'\Big(Sin$
30	3	$1^{a/1}$	$1^{a/2}$
31	10 à 13	$=$	$=-$
35	23	$Cot\, p\pi$	$Cot\, \frac{1}{2} p\pi$
37	20	$Sin\, x)^p$	$Sin\, x)^{p+1}$
45	11, 12	$2x$	x
51	4	$\frac{1}{4}$	$\frac{1}{2}$
51	7	(bis) p	q
51	14	$Cos^2 x$.	$Sec^2 x$.
53	1	(IV, 123).	M, D. 16, 28.
57	1	(IV, 127).	M, D. 16, 28.
59	4	$2+p^2$	$2-p^2$

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T.	F.	Au lieu de	Lisez
61	11, 12	$2\pi, \sqrt{\frac{pn}{rl}}$	$2, \frac{pn}{rl}$
62	11	(IV, 132).	V. T. 62, N. 9, 10.
64	5	$=\pi$	$=0$
64	7	$=0$	$=\pi$
64	11	$Cos\, ax$.	$Sin\, ax$.
64	17	$=$	$=\frac{p}{\Gamma\left(\frac{a+1}{2}\right)}$
69	6	$Cos^{a-1} x$.	$Cos^{a+1} x$.
77	4	N. 14.	N. 15.
78	3	N. 9.	N. 10.
78	4	N. 10.	N. 11.
79	3	B_{4a+3}	B_{4a+2}
80	11	T. 140,	T. 142,
82	7	$1+e^{-3x}$	$1-e^{-3x}$
83	5	V. T. 110, N. 8.	(IV, 174).
85	14, 15	Σ_0	Σ_1
88	4	$\frac{1}{5}$	$\frac{1}{30}$
89	23	$\Big\{1+$	$\Big\{1-$
92	1, 4	$\frac{1}{q}+$	$\frac{1}{q}+p$
94	13	l	$l\Gamma$
98	6	(IV, 201).	V. T. 98, N. 2.
98	7	π	$\sqrt{\pi}$
104	4	Σ_1	Σ_0
105	8	$e^{\frac{qx}{k}}$	$e^{-\frac{qx}{k}}$
106	25, 27	Σ	4Σ

CORRECTIONS.

T.	F.	Au lieu de	Lisez
106	26	$+2(-1)^a+$	$+$
106	34	$\sum_1^a \frac{1}{2^n}, (r+1)^n$	$\sum_0^a (-1)^n (l2)^{a-n}, (r+1)^{n+1}$
107	17	Σ	$\sum_1$
107	10 à 21	241	121
109	15, 18, 19, 23, 24, 26, 27, 31 à 33	425	241
110	13	T. 307,	T. 310,
113	3, 4	V. T. N.	(IV, 218).
113	7, 8	V. T. N.	(IV, 221).
113	8	$\frac{1}{5}$	$\frac{1}{30}$
113	11	V. T. N.	(IV, 224).
114	27	$Cos^2 \lambda -$	$Cos^2 \lambda +$
115	29	V. T. N.	(VIII, 582).
116	7	n^{q+2}	n^{p+2}
118	10	$(1-p)^2$	$(1+p)^2$
119	2	N. 15.	N. 14.
119	35	$-8p^4$	$-3p^4$
119	38	$F'(p)\Big]$	$E'(p)\Big]$
120	4	V. T. 313, N. 1.	(VIII, 582).
121	1	N. 23.	N. 24.
121	3	N. 14.	N. 15.
121	4	$\{E'(p)-F'(p)\}[T$	$\{E'(p)-F'(p)\}[F$
122	1	$\sqrt{1-x^2}$	$x\sqrt{1-x^2}$
125	10	$\frac{1}{q}$	$\frac{1}{4}$
125	11	N. 1.	N. 4.
125	13	N. 4.	N. 1.
127	14	N. 3.	N. 6.
130	18	$=$	$=-$
131	11	$Cos\frac{npx}{r}$	$Cos\frac{np\pi}{r}$
132	8, 9	$\pi^2-(lx)^2$	$\pi^2+(lx)^2$
132	24	x^{p-1}	$x^{\frac{1}{2}p-1}$
134	21	$+\frac{1}{x^2}, +\frac{q^2}{x^2}$	$+x^2, +q^2x^2$
135	6	q^2x	q^2x^2
135	12	*Cosec*	$Cosec^2$
136	17	N. 13.	N. 14.
138	25	T. 312,	T. 315,

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T.	F.	Au lieu de	Lisez
142	5	$\sum_0^{b-2}, \sum_{b-1}^{2b-1}$	$\sum_1^{b-2}, \sum_{b-1}^{2b-3}$
144	6	$\frac{dx}{1-x^2}$	$\frac{dx}{1+x^2}$
145	10	$l\left(\frac{3-\sqrt{5}}{2}\right)+$	$l\left(\frac{3-\sqrt{5}}{2}\right)-$
145	20, 21	$=$	$=\pi$
145	32	44, 477.	43, 315.
145	36	$(r+s+1)$	$(r+s-1)$
148	4	$\left(\frac{a-n}{n}\right)$	$\left(\frac{a-n}{a}\right)$
149	10	$(-1)^2$	$(-1)^n$
151	12	$p-$	p^2-
151	15	$=0[p<$	$=0[p>$
157	14	q_1+ps+	$q_1+\ldots+s+$
157	26	s_1+s_1+	$s+s_1+$
158	1	(IV, 274).	V. T. 156, N. 1.
159	2	(bis) 2^b	2^{b-1}
159	4, 5	a	$(p+1)$
161	4	$\frac{1}{4}$	$\frac{1}{2}$
162	3	$=-$	$=$
162	5	$e^{-2pq}, +e^{q(p-2r)}$	$e^{-3pq}, -e^{q(p-2r)}$
162	21	$(e^q-e^{-q})^a$	$(e^q-e^{-q})^{2a+1}$
163	8	$\sum^{\infty}$	$\sum^{a}$
164	9	498).	495).
164	20	$\frac{\pi}{2^{p+s-1}q}$	$\frac{\pi}{2^{p+s-1}}$
171	26	$\frac{\pi}{4}$	$\frac{\pi}{2}$
173	9	x^2	x^4
174	12	N. 10.	N. 11.
175	11	$=$	$=\frac{1}{2}$
177	29	P. 21, 71.	V. T. 160, N. 21.
178	2	T. 178,	T. 177,
183	10	393).	396).
187	13	$\frac{\pi}{4}$	$\frac{\pi}{2}$
189	11	$2x\ Cos\ 2x$	$2p\ Cos\ 2x$
192	6	$Sin\ rx$	$Sin\ sx$
192	7	5) et 6)	6) et 7)

CORRECTIONS.

T.	F.	Au lieu de	Lisez
192	10	(bis) 2^{2a+1}	2^{2a+2}
192	12	2^{2a+2}	2^{2a+1}
194	7	$\underline{(1-p)}$	$\underline{(e^{qr}+e^{-qr})(1-p)}$
194	14 (ligne 11, 14)	$=2a-r-s$	$=2a+r-s$
195	7	$d=$	$d=\mathcal{E}$
198	4	$<(a+1)r$	$<(a-1)r$
199	5	$p\,Sin\,q\,r$	$r\,Sin\,q\,r$
199	6	$p\,r$	$q\,r$
199	7	$\dfrac{Sin\,q\,r}{-2\,p\,Cos\,r\,x+}$	$\dfrac{Sin\,q\,r}{-2p\,Cos\,q\,r+}$
201	7	$e^{-(s-1)}$	$e^{-(s-1)qr}$
201	10	291.	491.
204	1	V. T. N.	(IV, 324).
204	8	$-\frac{\pi}{8}$	$+\frac{\pi}{8}$
204	27	T. 202, N. 16, 17.	T. 204, N. 25, 26.
205	9, 10	e^{p}	e^{2p}
208	18	N. 13.	N. 14.
208	19	N. 12.	N. 13.
208	27	Cos	Cot
208	28	$-Cos\{(1-p)2x\}$	$+Cos\{(1-p)2x\}$
208	33	$x\,Cos\,x$	$r\,Cos\,x$
221	1	T. 305, N. 9.	T. 308, N. 15.
230	12	$n+2m-1$	$p+2m-1$
231	26	N. 9.	N. 10.
232	14	$\frac{1}{2}\,l\,2$	$\frac{1}{2}$
235	17	T. 219,	T. 221,
237	20	$\dfrac{\pi}{\sqrt{1-p^2}}$	$\dfrac{\pi}{2\sqrt{1-p^2}}$
245	20	N. 11.	N. 14.
245	23	N. 15.	N. 18.
248	5	N. 12.	N. 13.
250	6	N. 9.	N. 10.
252	17	$x\sqrt{}$	$x^{\frac{3}{2}}\sqrt{}$
254	8	$\underline{\;2p\;}$	$\underline{\;2q\;}$
256	17, 25	$\sum_{1}$	$\sum_{0}$
256	25	$\overline{(r+1)^n},\ \frac{1}{2^n}$	$\overline{(r+1)^{n+1}},(-1)^n(l2)^{a-n}$

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T.	F.	Au lieu de	Lisez
259	2	$1+e^{-2ax}$	$1-e^{-2ax}$
259	3	$1-e^{-(2a+1)x}$	$1+e^{-(2a+1)x}$
259	4	$\sum_{1}^{a-1}$	$\sum_{0}^{a-1}$
259	10	$Cos^2\lambda-$	$Cos^2\lambda+$
261	8	$\underline{\;n^2\;}$	$\underline{\;n\;}$
262	8, 9	(bis) $\frac{1}{2}(q-1)$	$\frac{1}{2}q$
263	10	$+c$	$-c$
264	12	$Sin\,\Phi+$	$Sin^2\Phi+$
267	16	$\overline{}$ $Sin\,x$	$\overline{}$ $Cos\,x$
269	2, 3	(IV, 385).	V. T. 269, N. 1, 10.
273	10	$-e^{-p\,Sin\,2x}$	$+e^{-p\,Sin\,2x}$
275	7	$Sin^{2a+1}x$	$Sin^{2a+2}x$
277	3	Gr. 35,	Gr. 25,
277	5	$\frac{1}{p}$	$\frac{1}{p^2}$
277	15	635*).	634).
278	4	$(1-q^2)+(1+q^2)$	$(1+q^2)+(1-q^2)$
279	12	$\{-p+\Sigma$	$\{\Sigma$
279	20	$b-1$	$b-\frac{1}{2}$
280	5	$\int_{\frac{\pi}{2}}$	$\int_{\frac{\pi}{2}}^{\infty}$
282	3	N. 5.	N. 6.
286	9	$=$	$=\frac{1}{2}$
289	6, 7	T. 285,	T. 288,
291	17	$=$	$=\frac{1}{6}$
293	5	T. 295,	T. 293,
295	8	T. 148,	T. 147,
298	7	$l\,\frac{2}{8}$	$l\,\frac{2}{\pi}$
302	13	$(l\,Tg\,x)^2, =, -\frac{\pi}{2q}$	$(l\,Tg\,2x)^2, =\frac{1}{4}, +\frac{\pi}{2q}$
304	13	$-e^{-\frac{1}{2}p\pi}$	$+e^{-\frac{1}{2}p\pi}$
304	15	$dx=-, e^{p\pi}+1$	$\frac{dx}{Cos\,2x}=, (e^{p\pi}+1)^2$
304	22	T. 400,	T. 405,
304	23	$+e^{-\frac{1}{2}p}$	$-e^{-\frac{1}{2}p\pi}$

CORRECTIONS.

T.	F.	Au lieu de	Lisez
305	26	$\sum\limits_0$	$\sum\limits_1$
309	1	$4p$, N. 21.	$2p$, N. 25.
309	23	$1-2p$	$1+2p$
309	25	$\frac{\pi}{4}$	$\frac{\pi}{2}$
309	26	$Sin^q x$	$Sin^{q-2} x$
310	16	$4p$, N. 21.	$2p$, N. 25.
312	5	N. 10.	N. 9.
313	14	260).	360).
314	10	$dx = \frac{\pi}{2}\Big\{$	$Cot\,x\,dx = \frac{\pi}{2}\Big\{Cos\,q.lp+$
314	12	$l(Tg\,x).Cos(p, -\frac{\pi}{2}\Big\{$	$l(p\,Tg\,x).Cos(q, -\frac{\pi}{2}\Big\{-Sin\,q.lp+$
314	20	$\frac{\pi}{4}$	$\frac{\pi}{2}$
314	21, 22	$\sum\limits_1$	$\sum\limits_2$
317	15, 16	N. 12.	N. 14.
317	17	N. 13, 14.	N. 15, 16.
318	10	$=$	$=-$
319	4	$=\mp$	$=-$
320	15	$(Sin^2 x + p\,Cos^2 x)^2$	$Sin^2 x + p\,Cos^2 x$
324	2	$8p^4$	$3p^4$
327	8	$\sum\limits_1$	$\sum\limits_0$
331	7	$l(r$	$l(-r$
331	20	20.	23.
333	1	$(4a+1)\alpha$	$(4\alpha+1)a$
334	1	$Cos^2 x +$	$Cos^2 x -$
336	1	(IV, 471).	V. T. 366, N. 10.
339	9	$\sum\limits_0$	$\sum\limits_1$
340	5	472*).	322).
344	2	T. 236,	T. 239,
344	20	$\frac{Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}}$	$\frac{Cos^2 x}{\sqrt{1-p^2\,Sin^2 x}^3}$
345	15	$p\,Sin\,x$	$p\,Sin\,2x$
348	3	$\Big\{\frac{1}{2}$	$\frac{1}{2}\Big\{$
353	10	$\sum\limits^{2a}$	$\sum\limits^{2a-1}$
354	6	$=$	$=-$
354	12	$-\frac{1}{x+q}$	$+\frac{1}{x+q}$

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T.	F.	Au lieu de	Lisez
354	13	$(1+x)^{-p}$	$x(1+x)^{-p}$
361	3	24	6
362	12	e^{-r^2}	e^{-x^2}
365	4	$4q$	$4q^2$
368	5	(bis) $p^2 -$	$p^2 +$
368	16	(6 fois) $p\,l\{p^2$	$l\{p^2$
368	18	$\frac{dx}{x}$	$\frac{dx}{x^2}$
368	20	(IV, 509).	V. T. 368, N. 26.
368	22	(bis) *Arctg*	*Arccot*
368	24	$q+r^2$, 38	q^2+r^2, 389.
369	19	(bis) a	e
370	4	$\frac{r+s}{p}-, +\frac{r-s}{8}$	$\frac{r+s}{p}+, -\frac{r-s}{8}$
370	7	$-\frac{1}{8}ps$	$+\frac{1}{8}ps$
Page	529	T. 377 (en tête)	T. 373.
374	7, 8	$t\,Sin\,ux +$	$t\,Sin\,ux -$
377	2	(bis) $(-1)^{a-1}$	$(-1)^a$
383	16	q^3	q
384	10	$Cos\Big\{(s-1)\frac{1}{2}\pi$	$Cos\Big\{(s+\ldots)\frac{1}{2}\pi$
387	3	N. 5.	N. 13.
387	4	N. 13.	N. 5.
389	3	$Sin\,px$	$Sin\,qx$
389	14	e^{-x}	$e^{-\pi x}$
389	16	$-e^{-q}$	$+e^{-q}$
391	3	$Tg^2 x$	$Tg^2\,2x$
392	13, 14	e^{-2qtu}	e^{-2qr}
393	2	$(srx + t\,Sin 2rx)$, 154).	$(rx + s\,Sin\,rx)$, 155).
397	1	$Cos^p x$	$Cos\,px$
401	16	$1^{a-1/1}\,e^{p\pi}$	$1^{a-1/1}e^{\frac{1}{2}p\pi}$
401	20, 21	$\frac{p}{4}$	$\frac{p}{2}$
402	4	$Sin\,\Phi$	$Sin^2\,\Phi$
404	9	(IV, 523).	V. T. 404, N. 6.
404	11	$Cos(q\,l\,x)$	$Cos(p\,l\,x)$
405	1	(IV, 523).	V. T. 365, N. 1.
412	5	(VIII,	$E'(p)$ (VIII,
421	9	$p\pi$	$pq\pi$
422	8	$\frac{r}{p}$	$\frac{r}{q}$
422	9 à 12	$l(qr)$	$2\,l(qr)$

CORRECTIONS.

T.	F.	Au lieu de	Lisez
423	19	$^{2b/1}$	$^{2b-2/1}$
423	20, 21	$^{2b+1/1}$	$^{2b-1/1}$
423	22	$^{2b+2/1}$	$^{2b/1}$
425	10	64	64π
426	2	$+\frac{3}{2}(1-p^2)$	$-\frac{3}{2}(1-p^2)$
426	5	$+\frac{3}{2}(5+2p^2)$	$-\frac{3}{2}(5+2p^2)$
426	14	$8(7+p^2)$	$3(7+p^2)$
428	14	$-\frac{15}{2}$	$+\frac{15}{2}$
431	13	$Cos^r x, 2^r$	$Cos^{r+1} x, 2^{r+1}$
432	13	$^{2b-1}$	$^{2b+1}$
433	3	$\pi^2 i$	$\pi^3 i$
437	9	$+3p^4$	$-3p^4$
441	10	πdx	$x dx$
443	3	17	7
445	4	π	$\frac{1}{2}\pi$
449	11, 12	$Cos^2 x$	$Cos^2 2x$
449	15,18,19	$\frac{Tg\lambda}{\sqrt{1-p^2}}$	$Tg\lambda . \sqrt{1-p^2}$
454	1, 3	$p^{\frac{1}{2}r}$	p^{r-1}
454	5	$p^{\frac{1}{2}(r-1)}$	p^{r-1}
455	7	$Cos \left\{ c \right.$	$Cos \left\{ x \right.$
459	1	$1+q$	$1+q^2$
460	1	$-Ei(qr)$	$-Ei(-qr)$
462	3	656).	646).
465	4	$x dx, \left\{ \frac{1-p^s e^{sqr}}{1-pe^{qr}} - \right.$	$dx, \frac{1-p^s e^{sqr}}{1-pe^{qr}} +$
467	7, 8	$-l2+$	$-l2-$
467	10	$a^{-a^2 n^2}$	$e^{-a^2 n^2}$
469	13	$\frac{\pi}{q}$	$\frac{\pi}{4}$
471	2	$\int^{\pi}$	$\int^{1}$
471	5	$-e^{-px}$	$+e^{-px}$
479	8	12.	13.
479	9	13.	14.
485	15	$-e^{-p\,Arctg x}$	$+e^{-p\,Arctg x}$

ADDITIONS.

T.	F.	Au lieu de	Lisez
157	29	$\frac{1}{8}r^2\pi$	$\frac{1}{2}r^2\pi$
158	10	$p.2^{2a}$	$-p.2^{2a}$
159	29	$^{2b+1}$	$^{2b-1}$
159	31	$^{2b+1}, {}^{2b/1}$	$^{2b-1}, {}^{2b-2/1}$

T.	F.	Au lieu de	Lisez
6	9	Mém. Nap. T. 1, 37.	Mém. Nap. T. 2, 37.
10	17		
14	1		
264	5, 13		
467	12	Boole	Bronwin
472	11		
479	7		